SPECIAL SEPARAT
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# PEST CONTROL

OCTOBER 1958

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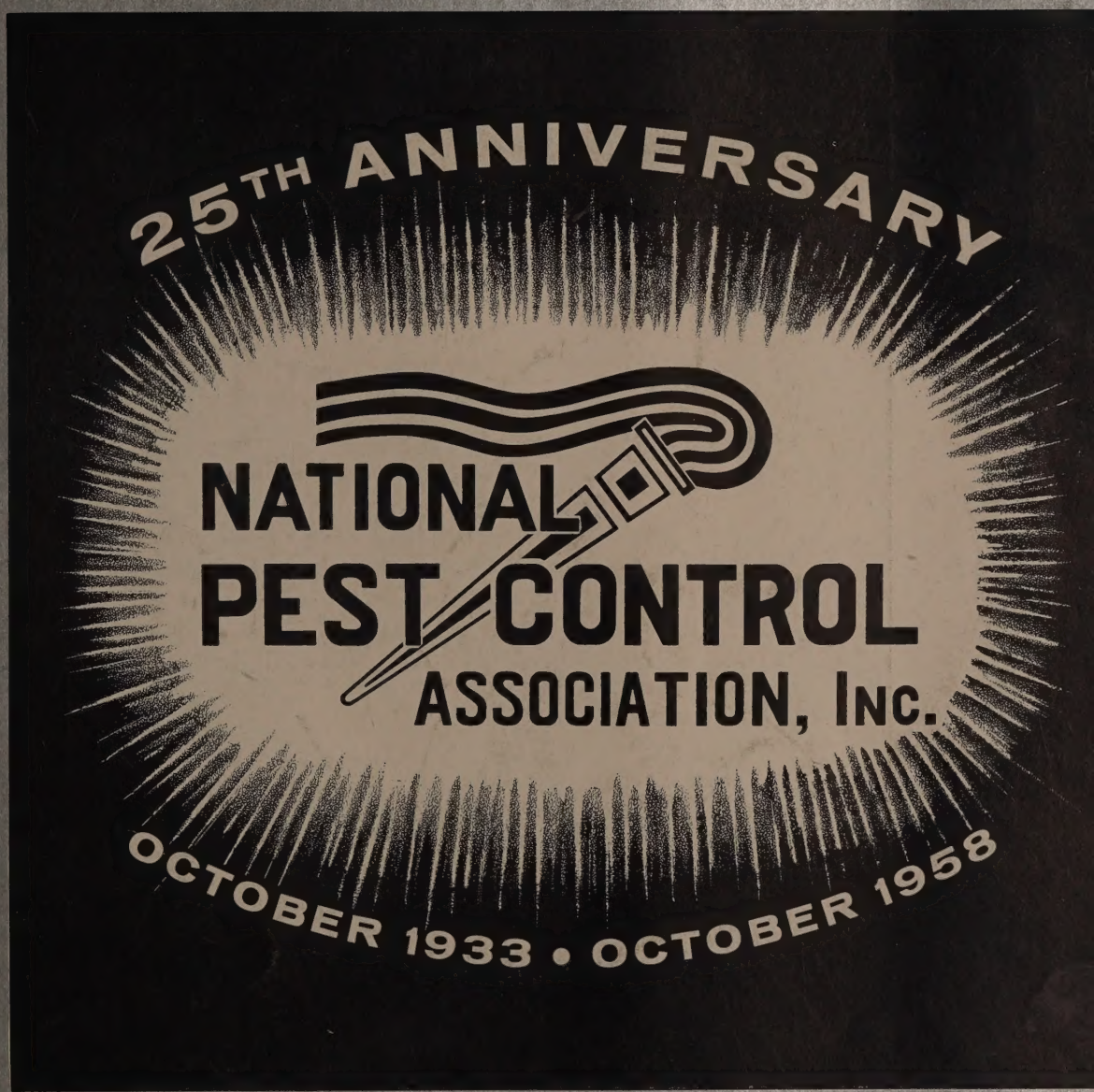


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## DON OLIVER,

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"We chose our old standby—Chlordane —to do the job!" You can't risk call-backs on a contract that involves 1,100 homes! As Don Oliver's letter states, that's why Shaef Chemical used dependable Chlordane for pre-treatment of the Capehart project. Mr. Oliver is a biologist, and was formerly with the U.S. Public Health Service. He is a member of the Georgia and South Carolina Pest Control Associations, and the Savannah Better Business Bureau.

Mr. Don Oliver, left, owner of Shaef Chemical Co., watches as Bill Holden, Project Superintendent, Albert Gersten & Associates, Beverly Hills, California, signs pre-treatment contract. Mr. Holden is in charge of construction at Capehart. In a recent interview, he said, "My experience with pre-treatment on the Capehart development has convinced me that it should be a part of every construction project. I'll certainly include it in any further construction that I do in termite infested areas."

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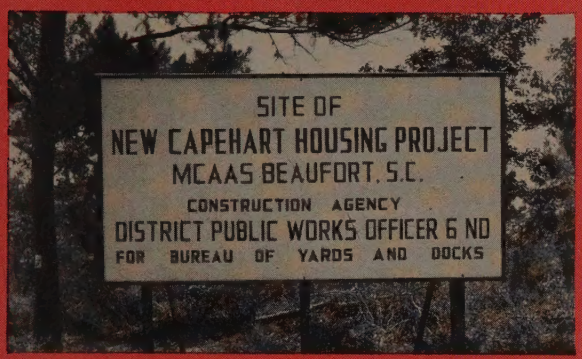
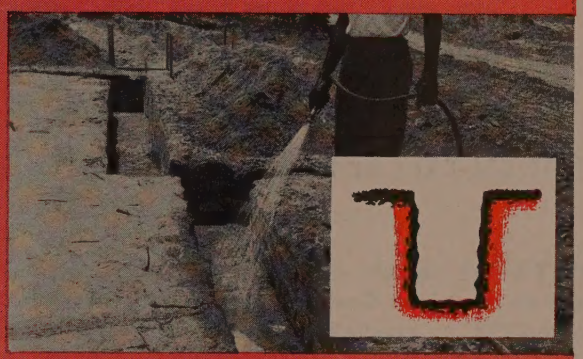
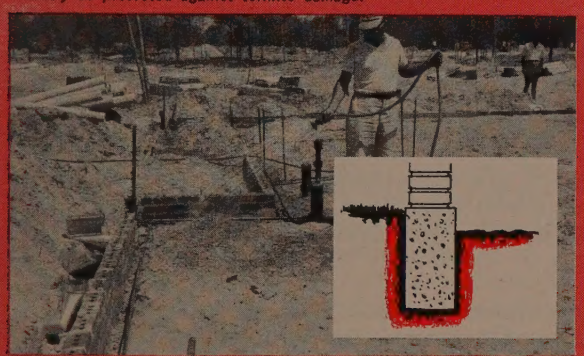



**A NEW COMMUNITY!** Behind this sign, Albert Gersten & Associates are building 1,100 single housing units on a 1,000 acre tract. Construction of the government sponsored project began January 23, 1958. The scheduled completion date is May 1, 1959. This is the world's largest single unit housing development, and the cost is estimated at from 15 to 20 million dollars. For a small fraction of this cost, it will permanently be protected against termite damage.



**FOOTING TRENCH TREATMENT**—First step in pre-treatment of Capehart homes is to treat the walls and base of the footing trench with a Chlordane solution. Concrete is then poured in this trench, to form the footing for exterior walls.



**PAD TREATMENT**—After the footing has been poured, and the exterior walls started, all of the exposed soil that will be under the slab of the home is thoroughly drenched with Chlordane. After this treatment, a moisture-proof polyethylene barrier is laid over the entire interior soil surface, steel reinforcement is positioned, and the concrete slab is poured.

**EXTERIOR TRENCH TREATMENT**—After the exterior walls are up, a trench is made, around the entire house, deep enough to expose the footing. Then, a Chlordane solution is applied to the trench. As the trench is refilled with soil, the replaced soil is saturated with the Chlordane solution. In this photo, Don Oliver inspects a completed exterior trench treatment.

## PRE-TREATMENT MEANS *EXTRA* BUSINESS!

Pre-treatment can be a valuable source of new business for PCO's in most sections of the country. Construction of non-farm residential dwelling units amounts to about 1 billion dollars a month. Most of this construction needs termite protection, and pre-treatment is the ideal way to provide it. To expand your business, discuss pre-treatment with builders in your area. It's a terrific business opportunity!

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# The Next 25 Years

This month the industry joins the National Pest Control Association to celebrate its Silver Anniversary. Before there was a National, "exterminators" were without favorable public recognition and operated without the benefit of experience from competitors, or from outside sources. Credit goes to the farsighted industry pioneers who formed the NPCA 25 years ago at a meeting in Washington, D. C. where its convention is now being held.

Every PCO, whether or not he is a member of the NPCA, must also credit its two executive secretaries, the late William O. Buettner and Dr. Ralph E. Heal, whose devoted service has made the industry what it is today. Elsewhere in this issue you will find a resume of the progress realized since October 1933.

But what of the next 25 years?

We predict a much larger percentage of the industry will belong to their national trade association. With this added support, the NPCA will have instigated a nationwide sales-promotion campaign. Standards for most, if not all, phases of pest control will have become established. Certification, not of minimums but of excellence, will be available to those who prepare for such recognition. There will be uniform accounting and business practices so a firm can compare its finances with that of the industry as a whole. There will be guides for serviceman training.

Pest control firms will use atomic energy to propel their application equipment. They'll use radiation to eliminate infestations. Sanitation supervision will become a significant part of their work, as will weed and ornamental pest control, lawn maintenance, and the sale of allied products. Every successful firm will make extensive use of sales promotion and advertising media, including signs on service trucks, uniformed servicemen, TV and phonovision. Servicemen will have advanced education. There will be twice as many pest control firms and all will be doing more business than each does in 1958. Sales volume can double to something like $350 million. Maybe that's conservative when you take into account inflationary pressures which will raise prices.

Predictions (there's room for only a few), are hazardous, but we'll venture many will have come true long before we celebrate our Golden Anniversary. If you've done any crystal-balling, write us what you see for the industry in 1983.

*Pest Control* congratulates the NPCA on its first 25 years. We look forward with it, and you, to an era of even greater public service in the next quarter century.

1933 OUR SILVER ANNIVERSARY YEAR 1958

# PEST CONTROL

EVERY MONTH SINCE 1933

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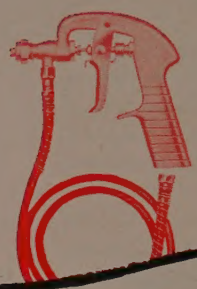

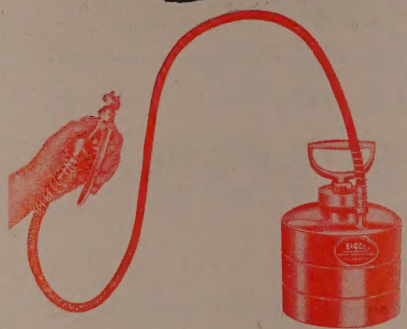

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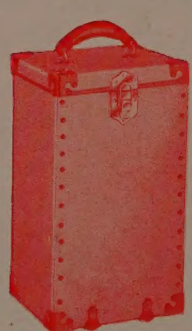

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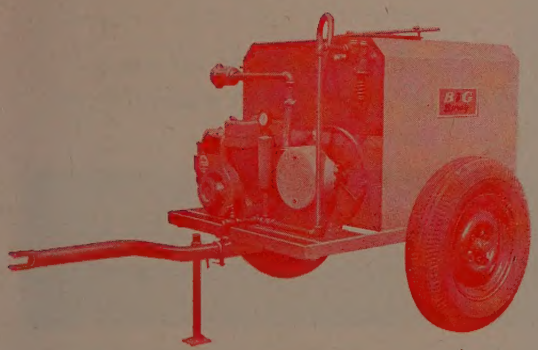

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# Round-up of FEDERAL RESEARCH:

Reports from the heads of Federal Agencies based in Washington, D.C., which cooperate with and provide the pest control industry research on new chemicals and control methods. Written especially for this 25th Anniversary of the National Pest Control Association.

## Entomology Research

Prepared by
**DR. E. F. KNIPLING**
Director, Entomology Research Division
Agricultural Research Service
U. S. Department of Agriculture
Beltsville, Maryland

THE National Pest Control Association, all of its members, and particularly the individuals who organized and developed the Association are to be commended for the outstanding progress that has been made during the last 25 years.

For many years the important role of the NPCA and its members in meeting pest control problems, particularly those in homes and industrial establishments, has been recognized by our research staff. That is why close working relations between our research staff and the practical PCO were regarded as essential. The steady growth both in numbers and in stature of the industry during the past 25 years is proof of the significant role that the pest control industry has played in meeting the Nation's varied and complex pest control problems.

The Entomology Research Division is one of the several Farm Research Divisions in the Agricultural Research Service of the U.S. Department of Agriculture.

It has a broad program of research activities. Unfortunately the amount of research which is devoted to specific problems of most interest to the pest control industry is relatively small. However, the research program as a whole is of such nature that much of the information developed even on strictly agricultural problems can be used directly or indirectly to help meet problems of most concern to PCOs.

The Division consists of five major units designated as Branches or Laboratories. These are Insects Affecting Man and Animals

by **Dr. E. F. Knipling**
**Dr. A. W. Lindquist**
**Dr. Lyman S. Henderson**
**Noble E. Buell**
**James A. Beal**
**George P. Larrick**
**Justus C. Ward**

★

Research Branch, Pesticide Chemicals Research Laboratories, Fruit and Vegetable Insects Research Branch, Insect Identification and Parasite Introduction Laboratories, and Field Crops Insects and Bee Culture Research Branch. In addition it has two Pioneering Research Laboratories —the Insect Physiology Laboratory and Insect Pathology Laboratory—which devote full time to basic research.

### Research of Insects Affecting Man and Animals Branch

The program of the Insects Affecting Man and Animals Research Branch is probably of most interest to PCOs. The research on insects affecting man is centered at Orlando, Fla. This laboratory has made outstanding contributions in the medical entomology field. Although the program is slanted primarily towards the control of arthropods of concern to military personnel, the information developed generally has broader application.

Dr. E. F. Knipling

The research at Orlando has always been carried out in close cooperation with industry. New insecticides and repellents developed by industry or public agencies are evaluated at Orlando on representative arthropods affecting man as a basis for determining if further effort is warranted in development of the material for practical insect control. In addition to the development of information on the use of insecticides and repellents during World War II, which still forms the basis for most vector control programs today, the laboratory during recent years has made valuable contributions by developing baits for controlling insecticide-resistant house flies and in the development of a variety of repellents and repellent formulations for personal protection of individuals from insect attack. It has cooperated with the NPCA and helped develop substitute materials for controlling other insecticide-resistant insects such as cockroaches, bedbugs, and fleas.

Currently the laboratory is continuing the testing of candidate insecticides and repellents for the control of body lice, house flies, mosquitoes, fleas, bedbugs, ticks, mites, and cockroaches. The development and evaluation of various insecticide and repellent formulations and methods of application is also a continuing phase of the program. It is well known that many arthropods affecting man and the household have shown ability to develop resistance to insecticides. Effective substitute materials which will provide control for the disease

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vectors and pests may be needed at any time. Special attention is being given to the development of powders containing substitutes for DDT and lindane, the current active insecticides employed for louse control, but which are unsatisfactory in many areas because of resistance. Synergized pyrethrum combinations and malathion are the most promising substitutes for controlling resistant lice. In view of the increasing number of **Anopheles** mosquitoes which are showing resistance to DDT, renewed effort has been directed to the evaluation of candidate residual wall treatments for controlling the adult vectors of malaria. To help meet the continuing house fly resistance problem, a variety of chemicals are being tested in sugar baits as well as for use as space and residual sprays. In the search for substitute materials for resistant species, emphasis is being placed on chemicals differing from the chlorinated hydrocarbon and organo phosphorous compounds.

As in other areas of insecticide development, one of the major problems is to find effective insecticides or repellents which do not create hazards to the individual. The Army Environmental Health Laboratory, Army Chemical Center, Maryland, conducts toxicological studies on the more promising compounds developed at Orlando.

The synthesis of new chemicals for use in insect control is a minor part of the program of the Pesticide Chemicals Research Laboratories, but, nevertheless, two chemicals have been discovered which are of increasing importance in the pest control field. These are allethrin, the synthetic pyrethrum-like insecticide, and diethyltoluamide, which has outstanding insect repellent properties against a wide range of insects attacking men. The work on methods of dispensing insecticide aerosols and sprays and on suitable formulations for efficient performance has been of particular importance in connection with the control of insects in the home and in industrial establishments. Such work conducted in close cooperation with industry is continuing.

The insect identification specialists in the Entomology Research Division serve the pest control industry in a way which may not be spectacular and often may not even be recognized as important. Nevertheless correct identification of the insects, with supplemental information on their life history and habits, are important services rendered by taxonomists to pest control.

### Pioneering Labs Research on Broad Entomological Scale

The two Pioneering Research Laboratories are not concerned with research on specific insect problems, but rather with basic research as it relates to entomology in general. The Insect Pathology Group is studying various kinds of pathogens which affect destructive insects to determine the species involved and measure their degree of virulence. The investigations also include basic studies of methods of culturing disease organisms, how diseases are spread from insect to insect and the influence of temperature and other environmental factors on the development and the virulence of diseases. The Pioneering Group generally does not carry investigations through to the applied phases. The field stations of the Division, on advice from the insect pathologists, test promising insect


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pathogens on specific insect pests.

The Insect Physiology Group, likewise, conducts basic research on broad entomological problems. Investigations include physiological and biochemical studies on insect growth, development, sensory perception, reproduction, and the utilization and fate of essential metabolites. Comparative studies with insects and mammals concerning the intoxication and detoxication systems involved in insecticide and synergist mode of action and investigations on the biochemical and physiological basis of insect resistance to insecticides are also under way.

## Man and Animals

prepared by
**DR. A. W. LINDQUIST**
Chief
Insects Affecting Man, Animals Research Branch
Agricultural Research Service
U. S. Department of Agriculture
Beltsville, Maryland

RESEARCH has played an important role in the growth of the pest control industry. In this the silver anniversary year of the National Pest Control Association, it is fitting to look for a moment into the past. In Exterminators Log, predecessor of Pest Control, one finds in the April 1933 issue an editorial appealing to the pest control industry to organize on a national basis "to raise the dignity and elevate the tone and standards of the profession." In the October issue that year is a report of a conference in Washington, D.C., at which the National Association of Exterminators and Fumigators was formed.

Problems of the pest control industry are reflected in the early issues of the Exterminators Log. It was clear that the industry was interested in research and improvements in pest control. Engrossing articles and discussions on various pesticides then available and on the control of cockroaches, flies, mosquitoes, termites, and rats appeared in nearly every issue. Interest of the industry in research has increased throughout the years.

For a long time before the pest control industry organized on a national basis, entomologists in the former Bureau of Entomology were investigating biology and control of household insects such as flies, mosquitoes, and cockroaches, as well as the structural pests, termites and wood borers. Several of these early scientists had close contacts with members of the pest control industry, but it was many years before close cooperation developed to a high degree.

During the mid-1930's pyrethrum sprays were in wide use by the home owner and the industry. Operators were having good success with pyrethrum-sodium fluoride dusts as a means of controlling cockroaches. Fuel oil alone and pyrethrum emulsions were standard materials for killing pest mosquito larvae in various situations. Paris green was effective against **Anopheles** larvae.

### War Creates Need for Research on Substitute Insecticides

Our entry into World War II cut off the supply of pyrethrum and also of rotenone, another important insecticide of that time. Importation of oil of citronella, which was the best-known mosquito repellent, was also affected by the world conflict. This was a serious situation from both the military and civilian standpoints. Farsighted leaders in the Army Surgeon General's Office and the Department of Agriculture saw the necessity for intensive research to develop substitute materials for the control of insects of military importance. Ac-

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# residual control of resistant roaches

*by Stanley Stainton, Supt. of Service—Harder Extermination Service, Hempstead, N. Y.*

When German roaches became resistant to chlorinated insecticides, we faced the immediate problem of finding effective new materials. We didn't realize it at first but we had *another* problem: because the living habits of resistant roaches differ from the non-resistant species, new application techniques were needed.

**New Insecticides:** The first thing we did was to switch to phosphate insecticides. We've used several. While they do give kill, the older phosphates give control for periods of only a week or less. We are now using the new insecticide Dicapthon and have found it by far the best resistant roach killer to date. In the first place, it is giving at least 3 to 4 weeks' residual control... even of heavy infestations. That's particularly important to our clients because more than twice-a-month service would be uneconomical for most of them. And, with long-term control, our crew can take on more jobs in a given period.

**Reinfestation:** Residual control is important in situations where reinfestation occurs frequently. In supermarkets and restaurants, cases come in from infested warehouses almost daily. Again, Dicapthon's residual control is doing the job no matter what the surface treated.

**New living habits:** We always start from the premise that application must be thorough, whatever material we use. But when the German roach became resistant, we were not getting control (at first) even with the most careful and thorough applications. We then found that resistant roaches had moved off floors, out from behind exposed pipes, compressors, crates, etc., into the space between the floor and the ceiling below. We are now applying Dicapthon in these interspaces (see picture). This technique, plus thorough application in all the conventional areas with this material, has given us the residual control we're looking for.

**Above** Thorough application in all the usual places is prerequisite for successful control of resistant German roaches. Here, under-counter pipe area is sprayed. **Below** Control of resistant roaches calls for treatment of ceiling-floor interspace in which these roaches nest. Basement ceiling has been opened to give entry.

**Speed of kill:** Where infestations are extremely heavy and where the client wants to see *immediate* knockdown, we add pyrethrins to the spray. However, Dicapthon will do just as complete a job alone as with pyrethrins added. It will also work on *all* surfaces, including glass and metal.

**Dicapthon-availability:** Dicapthon is a development of American Cyanamid Company. It manufactures and sells only technical material. Dicapthon formulations for professional pest control are offered by a number of companies under their own brand names. Ask your regular supplier for the brands he carries. American Cyanamid Company, Insecticide Department, 30 Rockefeller Plaza, N. Y. 20, N. Y.

CYANAMID

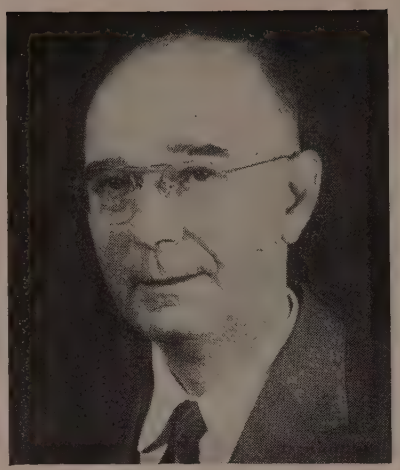
cordingly, a laboratory was established at Orlando, Fla., which was supported with funds from the Office of Scientific Research and Development. Early in 1942 the Department of Agriculture selected experienced entomologists and chemists from its various field stations throughout the country and assigned them to work at Orlando. A crash program was initiated with emphasis on the screening of thousands of chemicals for effectiveness as insecticides and repellents.

DDT was one of the first compounds evaluated, and the Orlando group quickly devised effective formulations and methods of use, especially residual applications to resting places of **Anopheles** and other mosquitoes, flies, ticks, fleas, bedbugs, and cockroaches. Research soon showed that residual treatment of dwellings provided effective control of malaria mosquitoes, and this development has since proved to be of incalculable value to the armed services and civilian populations all over the world. Other advances included the devising of efficient equipment and techniques for applying sprays from airplanes to control mosquitoes and other pests.

After the war research was continued at Orlando, but with emphasis on new insecticides, such as chlordane, lindane, dieldrin, heptachlor, and the organic phosphorus compounds. Lindane powders were found to be effective against DDT-resistant lice which were causing trouble in Korea. Investigations were also directed to the finding of substitute materials and methods for the control of house flies that had become resistant to the chlorinated hydrocarbon insecticides. These studies soon led to the development of poison baits using organic phosphorus insecticides for the control of house flies. Malathion, Diazinon, and Dow ET-57 (Korlan) have been tested extensively as direct sprays and residual treatments for control of bedbugs, cockroaches, mosquitoes, and flies, and are currently recommended for combating these and other pests.

### New Weapons Against Resistance

As to the future, we plan to continue research to find better insect control measures. The insect resistance problem is severe, especially with house flies, the German cockroach, and bedbugs. One approach to this problem is

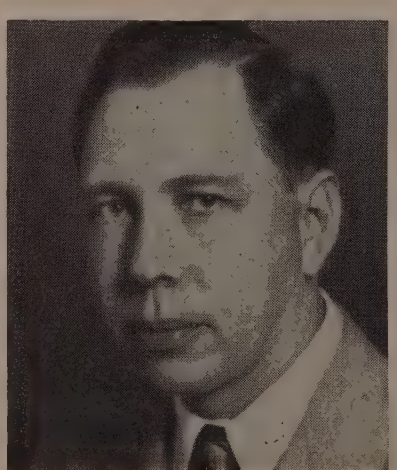


Dr. A. W. Lindquist

to screen hundreds of selected compounds with the hope of finding toxic materials with modes of action different from those now in use. This research is being emphasized as well as studies on developing effective attractants and repellents. A highly effective attractant would improve the usefulness of baits in practical control operations. A new study is the evaluation of compounds that may arrest the development of insects or otherwise interfere with their activities so that the end result will be death. Insect hormones may be considered for possible use in this field. Some emphasis is being given to the development of basic information on the rate of absorption and metabolism of different insecticides by insects with a view to gaining a better understanding of the nature of resistance.

Close contact with the pest control industry will proceed as in the past and be strengthened when necessary. Cooperation between the NPCA and the Entomology Research Division is manifested in several ways. Pest control operators are constantly confronted with new problems which involve insect resistance, the need for more effective insecticides, more suitable formulations, and special methods of application. We learn of these problems through the NPCA and local PCOs and are, therefore, able to direct our research towards their solution. Thus, the pest control industry helps to guide our research along needed and productive lines not only with benefit to the industry, but also to the general public.

* * *



Dr. Lyman S. Henderson

## Stored-Product Insects

prepared by
**DR. LYMAN S. HENDERSON**
Head, Stored-Product Insects Section
Agricultural Marketing Service
U. S. Department of Agriculture
Beltsville, Maryland

THE National Pest Control Association is one of the trade groups that was responsible for bringing the Stored-Product Insects Section into being. Prior to 1951, several groups pointed out to the Chief of the Bureau of Entomology and Plant Quarantine (since disbanded) that the general subject of preventing or controlling insect infestation in various stored agricultural products was an important one, and the research on it should be unified. Prior to that date, such research had been attached to each commodity group. In consideration of this request the Division of Stored-Product Insect Investigations was established in 1951. In 1954 most of the functions of this division were transferred to the Marketing Research Division, Agricultural Marketing Service, where it became the current organization.

In the transfer to Marketing Research Division, the area of research became broader, yet more definitely defined, and by some is now called Marketing Entomology. The area embraced covers studies on the prevention of insect infestation in agricultural products after harvest, in storage or transportation, in processing or food-manufacturing plants, and in the bulk or packaged food, feed or manufactured articles through marketing channels from the processor or packager to the consumer. Naturally many phases of this research are of direct interest to NPCA members. In fact, several Association

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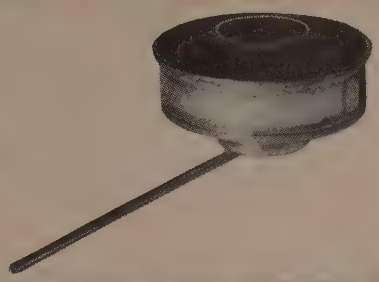

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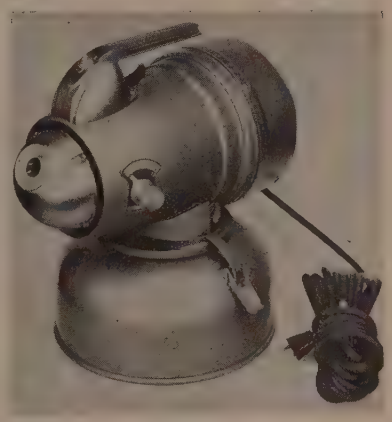

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committees, and other member firms, are cooperating in phases of research.

### Responsibility for Farm Product Insecticidal Residue Tolerances

One of the important activities of the Section has been related to insecticidal residue tolerances. The Section assumed responsibility for seeing that tolerances were established for the most important uses of insecticides on harvested agricultural products under the Miller Amendment. It made available to the manufacturers of insecticides data on the performance of various insecticides and on residues found that could be used in their petitions for tolerances. It participated in cooperative tests with industry groups to produce data where such were unavailable. It is now developing data so that tolerances may be established for some "fringe" uses. These may permit alternate insecticides for the pest control operator to use, or establish a method for the occasional problem that otherwise might be left with only control measures that would leave residues in technical violation of the Miller Amendment. It is also organizing cooperative research to develop tolerances for residues in manufactured or processed foods and feeds which are regulated by Section 406 of the Food, Drug and Cosmetic Act.

### Strides in Fumigation

The Section additionally is developing improved procedures, and in the last few years it has published much information on improved methods of fumigation. The recirculation method of fumigating bulk commodities has been developed. The Section has been instrumental in developing gas analysis units so gas concentration can be measured during a fumigation and corrective action taken if needed. It has contributed in the development of fumigation beneath tarpaulins, and in the use of plastic film as tarpaulins. It has published information on the residues that can be expected from the fumigation of various commodities, and called attention to the danger of exceeding the residue tolerance with repeated fumigations of the same lot of material. A handbook on the fumigation of grain in commercial storage has been prepared and soon will be published.

As a special problem, the insect control program used on Government wheat stored in surplus ships has been closely evaluated, and the contractors who are NPCA members, have been able to improve their procedures

Noble E. Buell

to the point where ship storage of wheat is utilized with almost complete freedom from insects.

### Food Plant Pest Control

A study has been inaugurated, following conferences with the Sanitation Committee of the NPCA, to set up guidelines for the selection and use of insecticides around food plants. The initial step here has been to determine the hazards of contaminating the product by application of residual sprays in the plant sanitation program. For example, the presence or absence of residues in packaged products stored in warehouse rooms sprayed with the more volatile insecticides such as lindane, Diazinon, malathion, etc., is being determined.

The Section is engaged in the evaluation of promising compounds as mothproofers and the development of better control and preventive measures for protecting textiles against insect damage. Promising compounds are also evaluated for their contact, residual, and vapor action to stored-product insects. Formulation and application studies are conducted with the better materials for use as various types of sprays, dust, and aerosols in manufacturing and processing plants, food warehouses, and transportation facilities.

Attention is also directed towards making the results of the research available to the pest control trade. About one-half of the articles published by the Section appear in trade journals read by Association members. Departmental publications are sent to these same journals with a request that their readers be informed of their availability. Copies of all publications of the Section go to the Technical Director of the Association. A check list of all publications and reprints available upon request has been prepared and can be obtained by writing the Section or the Association headquarters (250 W. Jersey St., Elizabeth, N. J.)

The Section now conducts studies at 10 field stations located at Beltsville, Md., (automatic devices for detection of hidden insect infestation in grain); Fresno, Calif. (dried-fruit, nut, and bean insects); Houston, Tex. (stored-rice and grain sorghum insects); Lee Hall, Va. (CCC grain problems on boats); Madison, Wis. (dairy-product insects); Manhattan, Kans. (stored-grain insects); Richmond, Va. (stored-tobacco insects); Savannah, Ga. (wool and fabric insects, insect-resistant packaging, insect control in food plants and warehouses, insecticidal residue analysis); Tifton, Ga. (stored-grain and peanut insects); and Watseka, Ill. (CCC grain problem in specialized facilities).

* * *

## Rodent Control

prepared by
**NOBLE E. BUELL**
Chief
Branch of Predator and Rodent Control
Bureau of Sports Fisheries and Wildlife
U. S. Fish and Wildlife Service
Washington, D. C.

IT IS A pleasure to have this opportunity to extend official congratulations to the National Pest Control Association on the occasion of its Silver Anniversary. In the years that have followed World War II it has become increasingly apparent that the control of rodent and insect pests is more and more a specialized field demanding the best in technically-trained people to make full use of the wonder chemicals of this age.

Two major improvements in the rodent control field during the past 25 years have been the development of new rodenticides and techniques, and the development of training progams for pest control operators.

### Rodenticide Development

In 1933 red squill and barium carbonate were probably the most common rodenticides. Arsenic, phosphorus, and thallium were used in special cases by qualified

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personnel. Strychnine was commonly used for controlling house mice, and fumigation with calcium cyanide was very common.

Just prior to World War II the NPCA and the U. S. Fish and Wildlife Service became interested in the fortification and standardization of red squill. Red squill is, undoubtedly, the most specific rat poison ever developed. That it still has a future is probably due in large part to our common interest in improving it. During this pre-war period zinc phosphide gained some popularity as a general rodenticide. It was found to be an excellent poison for both rats and mice and is still effectively used.

When early military action by the enemy in World War II cut off the supplies of red squill, thallium, and strychnine, research work to discover and test new poisons was intensified. ANTU, the abbreviated name for the chemical alphanapthylthiourea, was the first of the newer agents to be found. Although this chemical has some of the outstanding qualities of a good rodenticide, various manufactured lots were not uniform and the material was extremely toxic to dogs and hogs. For this reason and because other rodenticides were found, its widespread use was relatively short-lived. Manufacturing processes have since improved and many PCOs still find special uses for this product.

Compound 1080, or sodium fluoroacetate, was the next wartime chemical to be developed. This chemical also had many of the attributes of a good rodenticide, but, likewise, it had some disadvantages in its extreme toxicity and lack of antidotes. Hazards were over-emphasized in publicity on this new discovery: over-emphasized to the extent the chemical fell into undeserved disrepute with a public conditioned almost to hysteria over the mere mention of it. Use of the material must, of course, be restricted to qualified, trained users; but 1080 is still effectively employed by PCOs, and the industry is to be commended for wise use of the material.

Following the introduction of Compound 1080, there was a period of several years during which no new rodenticides appeared. In July 1950 the release of warfarin to the public opened up an entirely new approach to rat control in the field of the anticoagulants. Probably no development in rodenticides ever had such an effect on commensal rodent control as did the initial work on anticoagulants by Dr. Karl Link and his associates at the University of Wisconsin.

### Advance in Techniques

The second major improvement in the rodent control field for the commercial PCO was the emphasis on professional training. In 1936 at Purdue University and in 1940 at the University of Massachusetts, technical training programs were started for the professional PCO. These programs, known as PCO conferences, have been conducted annually since that time. More recently, similar conferences have been organized in all sections of the United States. These PCO conferences are in reality technical training sessions.

The NPCA must be given great credit for their development. It has done much to change the pest control business from "secret formula" operations to scientific enterprises. State universities and other public agencies assist

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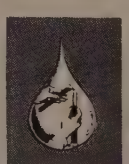

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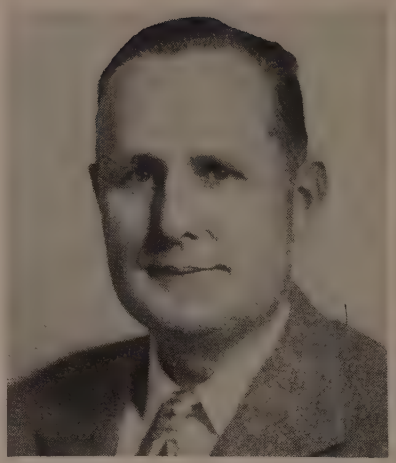
by providing the facilities and contributing to the technical presentations which make these conferences so worthwhile. We are proud to say the U. S. Fish and Wildlife Service had a part in this progress.

The Federal Government has a closely-defined responsibility in the field of pest animal control which is discharged through the Bureau of Sport Fisheries and Wildlife of the U. S. Fish and Wildlife Service. Within the Bureau this responsibility is shared by the Branch of Research and the Branch of Predator and Rodent Control. In the first, extensive research is continuously directed toward development of new and better control materials and means for utilizing them, both being coordinated with exhaustive life history studies of pest animals in changing habitats. The Branch of Predator and Rodent Control adapts research developments in the animal control field to the innumerable peculiarities of field application resulting from geographic, economic, or social variables.

In 25 years of growth and development, commercial pest control has assumed a greater and greater degree of public responsibility. The fact that there is a National Pest Control Association is recognition of that responsibility; that this vigorous, growing association is celebrating its Silver Anniversary this year is proof of the successful discharge of that responsibility. The Association's Service Letters and Technical Releases are a reflection of professional regard for the communities which they serve.

We appreciate the close ties with the National Pest Control Association and its individual members and believe they have been mutually advantageous to the economy of the Nation. We hope this relationship continues, believing the developments of the past 25 years will tax our combined resources. Pest Control magazine carries a line which says it is a "monthly magazine of the urban and industrial pest control and sanitation service industries." The word "urban" has a new meaning in terms of the innumerable "suburbias" mushrooming almost everywhere. Field and commensal pests are a new experience for thousands of people. The impact of our predicted exploding human population is just beginning to be felt; coupled with present industrial



James A. Beal

and technological progress, who can foresee how it will affect the pest control industry? We assume production and sanitation standards will continue to rise. On that assumption we predict a need and demand for pest control services undreamed of in these first 25 years, and a professional specialization in pest control now only well begun. We hope to read this prediction at the NPCA's Golden Anniversary.

* * *

## Wood Destroying Insects

prepared by
**JAMES A. BEAL**
Director
Division of Forest Insect Research
Forest Service
U. S. Department of Agriculture
Washington, D. C.

I WANT TO commend the National Pest Control Association on its Silver Anniversary for its high standards and achievements in helping to protect homes and other wood structures and their contents from the ravages of insect pests. It is gratifying to note the eagerness with which members of the Association seek information on the development of improved methods of pest control and their readiness to put these methods into practice.

I take pride in the knowledge that the Division of Forest Insect Research has, for many years, had an active part in the development of methods of protecting wood from destructive insects such as termites and wood boring beetles. It is significant that many practices which were developed through this research are in wide general use today. This work, however, represents only a small segment of our Division responsibilities for research.

The Division of Forest Insect Research is a part of the Forest Service under an Assistant Chief in charge of Research. It was transferred from the former Bureau of Entomology and Plant Quarantine in 1953. The Division is responsible for all Federal research and detection and appraisal surveys on insects that kill or damage forest and shade trees, wood and wood products. This work is conducted by entomologists at nine forest experiment stations located in the principal forest regions of the Nation, including Alaska, and at a laboratory at Beltsville, Md.

### Research of Chief PCO Interest Based at Beltsville, Gulfport

The work on termites and forest products insects which, of course, is of most interest to pest control operators, is being done primarily at the Beltsville, Md., and Gulfport, Miss., laboratories with the extension of certain tests into the Panama Canal Zone. Reference to this research should certainly include the names of some of the best known entomologists connected with it and responsible for its direction. First of these is Dr. T. E. Snyder, recognized world authority on termites. A review of his publications alone would reveal the developments in our knowledge of termites and their control over the past 50 years. Others in the Division who have also contributed much information on termites and other insect pests of wood and their control, and whose names appear most frequently in publications on the subject are, R. A. St. George, R. J. Kowal, and H. R. Johnston. Gradually, a few new names are being added to the list of those engaged in research in this field of endeavor, but it is still a very small group.

We are fully aware that the losses caused by termites and other insect pests of wood are indeed very great. Even the best estimates, however, are but informed guesses. These losses are not spectacular, but are insidious and erratically spread over both space and time. They do not occur as a result of epidemics that attract wide public attention. For these reasons, facilities for research in this field of endeavor have long been inadequate. There is, therefore, urgent need to strengthen the present research on wood products insects and their control. Because of the high values inherent in buildings and other manufactured wood prod-

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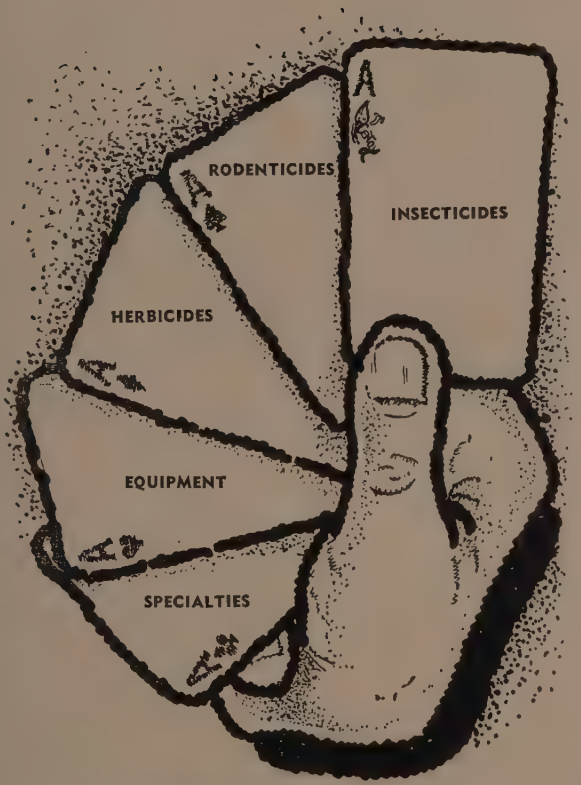


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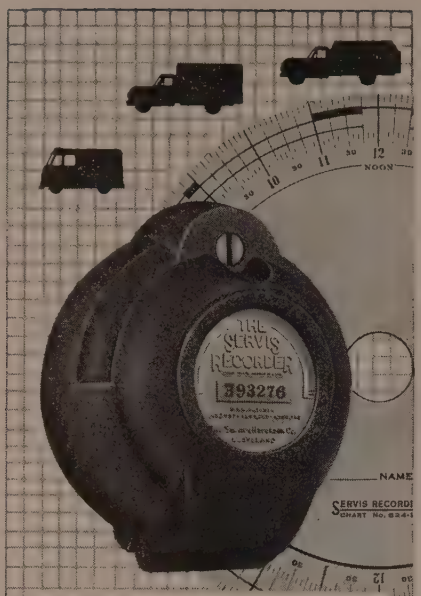


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ucts, additional research in this area would pay attractive dividends in the form of more effective methods of coping with problems of wood insects.

Since World War II, the synthesis of numerous new chemicals, some of them suitable for treatment of soil, has made possible more rapid progress in the development of improved methods of termite control. As a result, longer lasting, safer, and more effective methods are available today than formerly. On the other hand, new problems have arisen from changes in methods of construction, and changes in structural material that have complicated the problem of protecting wood in use. For example, slab-on-ground construction is a boon to termites but a headache to both home owners and termite control operators. In addition. the increased use of sapwood over heartwood has also increased the likelihood of insect attack. Then too the more frequent occurrence of the introduced old house borer in construction material is creating new and difficult problems.

The objective of control of insects that attack wood in use differs sharply from most other pest control. In agriculture or forestry, it often suffices to kill a high proportion of the offending broods during a single generation. The objective in safeguarding wood, however, is to obtain protection over a span of years with a single treatment. This requirement puts increased responsibility on the researcher and adds years to the time necessary to complete a single test. Unfortunately, no one has yet developed a satisfactory quick method for determining how long a soil-insecticide at a prescribed dosage will be effective against termites. Neither is it possible to make a quick determination as to how long a particular treatment will give complete protection from insects to wood under test.

### New Control "Clues" Being Gained from Research

New clues leading to better control of these insects are being developed continuously through our research. For example, preliminary results from current studies indicate that freshly-cut wood, which is subject to severe damage by Lyctus beetles, may lose its attractiveness within a few years. This is believed to be related to starch depletion which apparently is dependent upon time of year cut, and methods of seasoning as it relates to temperature and humidity. Recent tests also have shown that the old house borer can be controlled in joists and sub-flooring of buildings by surface treatments with one of the chlorinated hydrocarbon insecticides in refined kerosene oils.

For some time now, Division researchers have been working on the residual effectiveness of toxic chemicals on subterranean termites, particularly the dosages needed for various types of back fills, and the effect of these soil insecticides on moisture barriers when applied beneath concrete slab construction. Tests are also being run on vapor barriers fortified with toxic chemicals and certain insulating materials are being evaluated. Appraisals are still being made of earlier ground board and stake tests at both Panama and Gulfport and additional recent tests are in progress at Gulfport.

In conclusion, I should like to report that research workers in the Division have prepared a new bulletin on control of subterranean termites. This paper reports on recent Forest Service research and brings our knowledge on ground-nesting termites and their control up-to-date. It covers their appearance, biology, and habits; describes methods that can be applied during construction to prevent subsequent attack; and reviews termite control in existing buildings. It is amply illustrated with pictures and figures. The bulletin is now in the review stage and should be available within the next few months.

* * *

## Pure Food Law

prepared by
**GEORGE P. LARRICK**
Commissioner of Food and Drugs
Food and Drug Administration
U. S. Dept. of Health, Education, and Welfare
Washington, D. C.

THE PEST CONTROL practices of food manufacturers and warehousemen are of concern to us during every inspection we make of these establishments. In fact, some aspect of pest control, or its results, enters into most of the food law enforcement work of the Food and Drug Administration. During fiscal 1957, approximately three-fourths of the 810 court actions involving food products under the Federal Food, Drug, and Cosmetic Act were

based on filth contamination or insanitary handling or storage. Thus our mutual interests with the National Pest Control Association are important, and we appreciate the opportunity to contribute to the Silver Anniversary Convention issue of Pest Control.

Enforcement of the Act—our National Pure Food Law—is our principal responsibility in FDA. This law protects the purity, safety, and label integrity of all foods, drugs, and cosmetics moving in interstate commerce. It places great emphasis on sanitation in food processing and storage, thus creating the opportunity for the pest control industry to serve the ends of the law; but it also requires protection of foods from contamination with the "tools" of pest control—i.e., the insecticides, rodenticides, fumigants, and other pest control agents. Thereby, it confers upon pest control operators a great responsibility for the safety of foods they are called upon to protect from pests.

It is significant on this anniversary that the birth of the National Pest Control Association in 1933 coincided with the beginning of the legislative movement which culminated in 1938 in the law we now enforce, replacing the original Federal Food and Drugs Act of 1906.

### Plant Pest Control, Sanitation A Requirement of 1938 Law

Prior to 1938 our enforcement of the food law had not involved appreciable attention to sanitary conditions in manufacturing and storage establishments, since there was no authority in the old law for factory inspection. The provisions in the new law authorizing inspection, placing emphasis on sanitation, and in effect requiring food processors and handlers to practice pest control where none had existed before, opened up a vast new field of activity for the Food and Drug Administration. The urgent need for insect and rodent control in food processing and storage was immediately apparent on our first round of factory and warehouse inspections under the new law.

Thus looking back over your Silver Anniversary period, it is evident that the enactment of the 1938 law was probably the most important single event of the period in the area of our mutual interests. Within the span of a few years, the consumer benefits from this law were evident in


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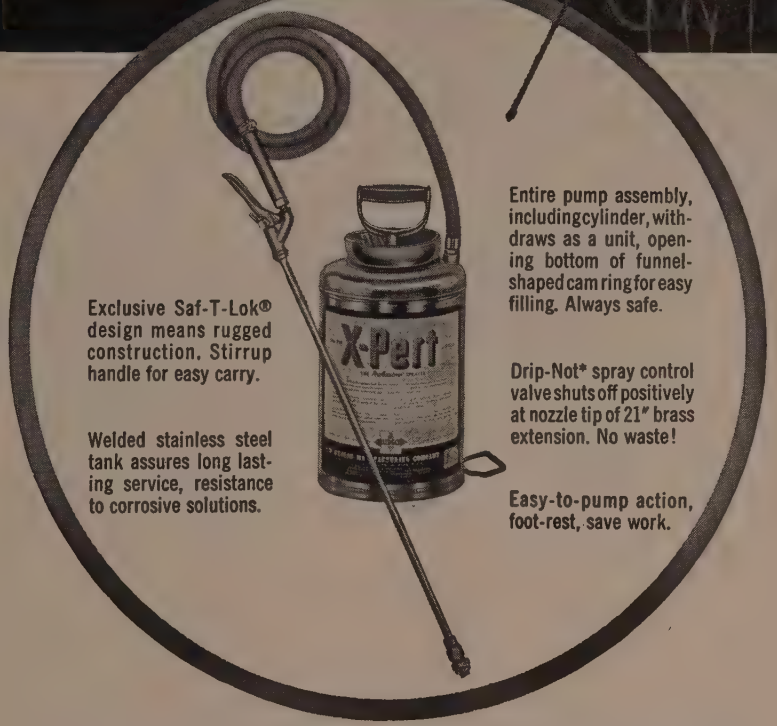
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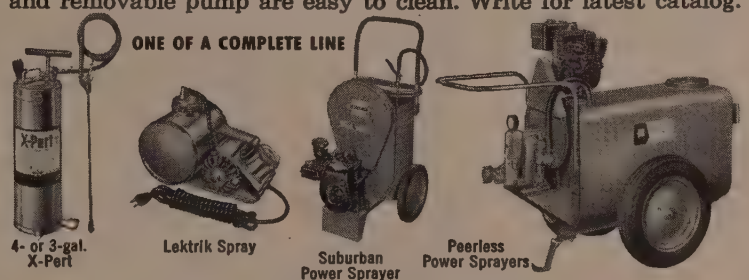


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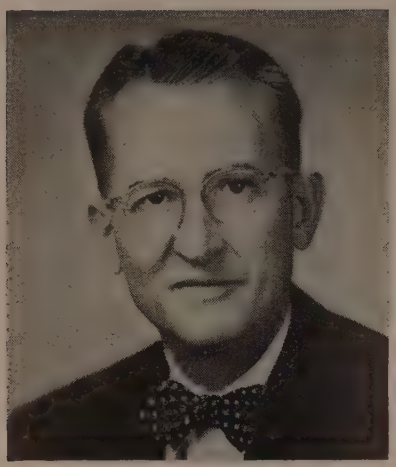

George P. Larrick

terms of cleaner candy plants, bakeries, flour mills, dairy plants and food warehouses, and a corresponding improvement in the purity of these products and those of the other food industries. Sanitation, of which pest control is a part, has evolved into a science, but sanitation is not something which can be accomplished and forgotten. It must be practiced continuously, and unrelentingly.

A direct result of World War II, which followed soon after the new law was passed, was the sudden commercial availability of a host of new products and new techniques for pest control. Some of the new products turned out to be exceedingly toxic to man as well as to the pests for which they were intended. Regrettably, the occasional careless or irresponsible use of such products has brought some PCOs into conflict with the law. In the middle 1940's, we encountered a rash of instances of the careless use of a highly toxic rodenticide in a manner which could readily lead to contamination of the stored foods. Persons responsible for such careless use of pesticides have been named as defendants, sometimes along with the shippers of the food, in court actions brought under the law. However, the number of such instances has been gratifyingly small, and a review of our most recent experience has shown a commendable degree of responsibility and maturity in the application of the modern pest control weapons. We hope that this observation will continue to be true, and that your training programs for new personnel will insure that continued progress is made in this direction.

### Miller Law Sets Tolerances

We could not review recent history in the area of pest control and consumer protection without noting the enactment of the Miller Pesticide Amendment to the law in 1954. This amendment established streamlined procedures for setting safe tolerances of residues of pesticides which remain in or on raw agricultural products. While its greatest impact was upon the control of residues of pesticides applied directly to growing crops, the amendment also affects PCOs in several respects:

: : Pesticides used in grain elevators, dairies, warehouses, box cars or other conveyances, or any other place where contamination of raw agricultural products may result, must be used with due regard to any tolerances which have been established under the amendment.

: : The pesticide label, which is registered by the U. S. Department of Agriculture, contains directions designed specifically to insure compliance with any applicable tolerance set by FDA. Thus PCOs do not have to worry about the tolerance **if label directions are followed.**

The amendment does not affect the general provisions in the law which protect foods other than raw agricultural products from contamination with injurious substances.

The battle against insects and rodents as contaminators and destroyers of food, and as vectors of disease, has not been won. New chemical weapons for the battle will undoubtedly continue to be developed, and some will undoubtedly bring new problems with them. The next 25 years promise to be as interesting as the last 25 have been. We look forward to continued pleasant relationships and cooperation with the National Pest Control Association, in a mutual effort to protect the public.

* * *

## Pesticide Regulation

prepared by
**JUSTUS C. WARD**
Head, Pesticide Regulation Section
Agricultural Marketing Service
U. S. Department of Agriculture
Washington, D. C.

A TWENTY-FIVE YEAR history is long enough to cover much that can be defined as progress. This is undoubtedly true of the National Pest Control Association, and it is felt that it is also true of pesticide regulations.

When the Association was formed in 1933, its members used products subject to the controls of the Federal Insecticide Act of 1910. Then, as the Association grew, the materials available were increased, and the problems related to their use multiplied; so it was that in 1947, the Insecticide Act was revised and became the Federal Insecticide, Fungicide, and Rodenticide Act. Under this statute, it became possible for the Pesticide Regulation Section to require labeling which was of increasing value to the pest control industry.

During the past ten years, this Federal law has served the public and the trade through improved and more detailed reviews of directions for use and precautionary labeling on all new products which appeared in that most demanding decade. While a few of the chemical agents still in use were known in 1947, and had received wide industry acceptance, most of the modern "tools of the trade" have been discovered or developed in the past ten years. The Federal Insecticide, Fungicide, and Rodenticide Act and its administration have had to keep pace with this rapidly expanding group of pesticides, so that new materials could be registered promptly enough to satisfy the desire for rapid interstate distribution, while at the same time giving the labels the scrutiny essential to be sure they were adequate to protect the public.

### 2 Chief Labeling Benefits

To members of the National Pest Control Association, Federal acceptance of labeling under the Federal Insecticide, Fungicide, and Rodenticide Act meant two very important things:—(1) the pests for which the formulations were designed would be destroyed when the directions on the

Justus C. Ward

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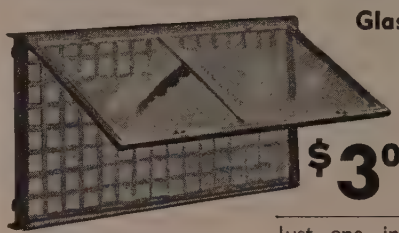

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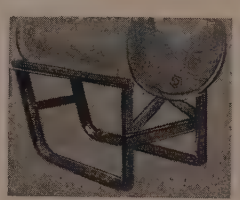

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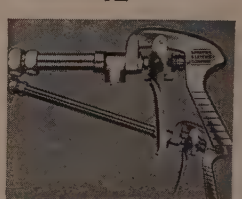

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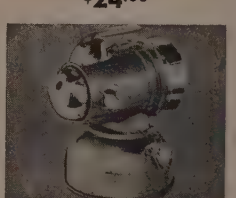

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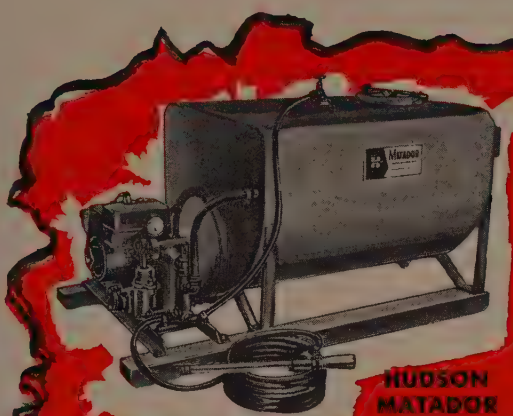

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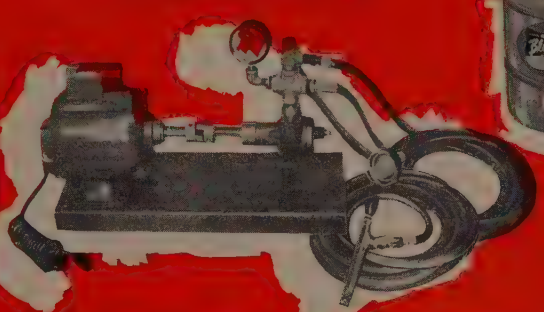

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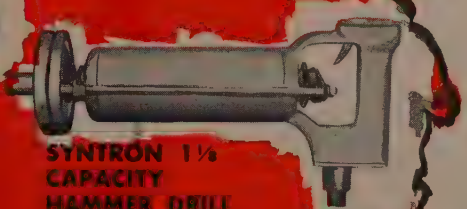

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label were followed, and (2) neither the operator nor his customers would be endangered when the precautions were observed. These points are basic when use of strong chemicals is involved. The reassurance which has been given to the PCO in his use of the many new chemicals made available to him since 1947 through the functioning of the Federal law, is hard to estimate.

Keeping up with the developments has been a hard job for the staff of the Pesticide Regulation Section, and it is one which is not getting any easier. A new Interpretation 18, Revision 2 is presently being prepared. It will include a number of new products, and will have "pattern" precautionary labeling for all of them. Certain changes in other Interpretations also are under study. So it is obvious that the Federal Insecticide, Fungicide, and Rodenticide Act is a dynamic act, which must be adjusted somewhat to changing needs.

### Cooperates with NPCA

It is well to emphasize, however, that all of the values which have developed from the administration of the Federal Insecticide, Fungicide, and Rodenticide Act have not been limited to the importance of the law to the user of the pesticide. During the past few years, the scientific committees set up within the National Pest Control Association have cooperated in a very definite way with the staff of the Pesticide Regulation Section through testing of materials believed to have possible value in structural pest control. Such an arrangement is based on the fact that often pesticides are proposed for uses which may fulfill the needs of the commercial PCO, but for which proof of effectiveness adequate to justify registration is lacking. Under such circumstances, the Pesticide Regulation Section frequently has issued Experimental Permits to applicants for registration for amounts of the new pesticides sufficient to supply research quantities to selected cooperating firms. When results of the studies undertaken by these men have been made available for consideration by the Government, final decisions as to registration could be reached.

Present trends are toward more regulation for both the users of hazardous products and the manufacturers or distributors of them. These trends seem to forecast that new Federal, state, and city laws and codes will be approved. They will be supported by the fact that deaths and injuries from dangerous solids, liquids, and gases have attracted more and more attention as medical research has reduced the impact of disease, and accidents have taken on greater significance in the field of public health.

Important as they are, new statutes are only one way through which safe use of dangerous chemicals is to be reached. Others are by proper education of the inexperienced and uninformed public and by establishing of unquestioned safety records by those experienced users of such products. It is in the latter area that the National Pest Control Association and other commercial users of pesticides, dangerous drugs, and similar hazardous products have a continuous responsibility. Every effort should be made to build up long-term safety records which no enforcement agency of Government can challenge. This is one project a growing and aggressive National Pest Control Association may well sponsor in its next 25 years.

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## *Individual and Committee Leadership in Helping Advance Pest Control Industry to Its Present High Level of Technical Proficiency Typifies*

### NPCA Growth Required Change of Home Three Times

The National Pest Control Association has occupied three different headquarters since its founding in 1933. For the first 16 years (from October 1933 to December 1949) the Association's seat of operations was at 3019 Fort Hamilton Parkway, Brooklyn, N.Y., where NPCA founder William O. Buettner and his father maintained a pest control business. "Bill" is shown above with his father, in front of their Brooklyn headquarters. At left is the entrance to the NPCA's New York City home at 30 Church Street, which the Association leased from December 1949 until the move to its present location in Elizabeth, N.J. in the spring of 1957 (see photo below). In addition to offices for the Association's Executive Staff, the NPCA's William O. Buettner Memorial Building in Elizabeth is equipped with a laboratory, library, conference rooms, work rooms, spacious storage areas, plus a ladies lounge financed by the Lady Bug auxiliary.

A QUARTER OF A CENTURY ago while the nation reeled under a depression idling 15 million persons, the "exterminator" with his vague promises of pest relief became a luxury few felt they could afford. It was a period when the average PCO could see his market crumbling around him. The only apparent way to recover it was through cut-rate pricing plus heavy volume selling, a practice which lowered operators' general standard of service and eventually their prestige.

These conditions set the stage for the first meeting of the National Association of Exterminators and Fumigators, Inc., forerunner of the National Pest Control Association, which is celebrating its 25th anniversary convention in Washington, D.C. this month. For today's industry members, with their high level of public respect and appreciation gained largely through efforts of members who make up the NPCA, troubles of 1933 are as far behind as depression-day breadlines. But during the pre-dawn of the National, the industry crisis was very real for operators, and suspicions of PCOs for one another were not confined to the competitive end of the business. Even efforts to organize the industry for that first Washington convention 25 years ago aroused mistrust.

In September 1933, attention was drawn to these suspicions by one of the key Association organizers, the late William Oscar Buettner, a pest control operator who was the group's first president and its executive secretary for 19 years. In business with his father, Oscar G. Buettner, at 3019 Fort Hamilton Parkway, Brooklyn, N. Y., young "Bill" Buettner came up through the ranks of the Society of Exterminators and Fumigators of New York, Inc., following his graduation from Dartmouth College. Writing in September 1933, in the first of 45 articles for this magazine, he warned against a stand-pat attitude among industry members

# NPCA's First 25 Years

when it came time to organize and support a National.

### Suspicion and Mistrust

"For several years," Buettner wrote, "exterminators and fumigators have sounded a desire for a National Association and yet it has been difficult to have anyone or any section of the country assume the initiative. At best, no matter if it be any individual or concern, or if it be some section of the country that would assume such initiative, a note of suspicion and even mistrust would find its way into such an endeavor.

" . . . A program setting up standard procedures . . . in trade practices, wages, etc. and formulated into a program that has national support ought to reflect in the elimination, at least in part, of some of the unscrupulous and cut-throat methods of competition so prevalent the past year or two. These unscrupulous and cut-throat methods have done more to undermine the structure of legitimate business than any other factors."

### Then Two At Once

But once Buettner started the ball rolling, the industry didn't need to be jogged further into supporting the National. Support was so strong, as a matter of fact, there were actually two national organizations in existence simultaneously. Shortly after Buettner spearheaded the incorporation of one in New York and before the first general membership meeting could be held in October, another National, "Associated Exterminators and Fumigators of the United States," was chartered by 50 PCOs in a Cleveland meeting September 25-27, 1933.

To assure unity and avoid duplication of purpose, however, the Cleveland group disbanded during the later stages of its meeting. A delegate, Lawrence McKenna of Cleveland, Ohio's A C Exterminating and Chemical Corp., was named to represent the Cleveland group at the first meeting of the National Association of Exterminators and Fumigators, Inc. at Washington, D.C.'s Continental Hotel, October 2, 1933.

This meeting of the NAE&F drew over 50 PCOs representing 300 firms and was probably the busiest in Association history. Next to "Bill" Buettner, records indicate the busiest man there was Martin T. Meyer of Theodore Meyer Estate, Philadelphia, Pa. He made no fewer than nine of the 18 motions proposed, seconded two others, was named to the convention's entertainment committee, and was elected a vice president for 1933-34.

### First Day: 16½ Hours

In almost continuous session from 9:30 a.m. the first day until 2 a.m. the following morning, except for fleeting intermissions to eat, the members adopted a constitution and by-laws; drafted a national Code of Fair Competition under terms of President Roosevelt's National Industrial Recovery Act; accepted resignations of the first slate of temporary officers installed for the incorporation proceedings; and elected new directors and officers.

In addition to Buettner, who was elected president for 1933-34, other new officers chosen in Washington were: secretary, Irving H. Josephson, Josephson Disinfectant Co., Bronx, N.Y.; treasurer, H. K. Steckel, Tornado Manufacturing Co., Columbus, O.; and vice presidents Lewis A. Rich, George B. DeLue Co., Mattapan, Mass.; F. R. Andrews, Fumigation Service Co., Kansas City, Mo.; Martin T. Meyer; Lawrence McKenna; and F. D. Hubbell, Baltimore Fumigators, Inc., Baltimore, Md.

New directors included B. W. Eldredge, Waltham Chemical Co., Waltham, Mass.; F. E. Bohman, Birchard System, Inc., Hartford, Conn.; Dr. M. Reiman, Oriental Exterminating Co., New York, N. Y.; A. E. Ritt, Vogel-Ritt Agency, Philadelphia, Pa.; P. C. Cissel, American Disinfectant Co., Washington, D. C.; W. E. Martin, Bug-Death Disinfectant Co., St. Louis, Mo.; C. Russell Lee, Crusader Co., Detroit, Mich.; Wallace B. Tanner, California Termite Control Co., Hollywood, Calif.; N. B. Gregory, Houston, Tex.; Harry C. Stucker, United Chemical & Exterminating Co., Jersey City, N. J.; Mrs. G. N. Walker, Orkin Exterminating Co., Inc., Richmond, Va.; Dr. E. D. Wilson, Guaranteed Sanitation, Inc., New York, N. Y.; William Elliot, Original Roach Co., Brooklyn, N. Y.; Max Levy, Twin City Exterminating Co., St. Paul, Minn.; C. Norman Dold, Rose Exterminator Co., Chicago, Ill.; William Phippard, Willmar, Inc., Cincinnati, O.; H. O. Abel, Abel Exterminating Co., Dallas, Tex.; and W. B. McCloud, W. B. McCloud & Co., Chicago, Ill.

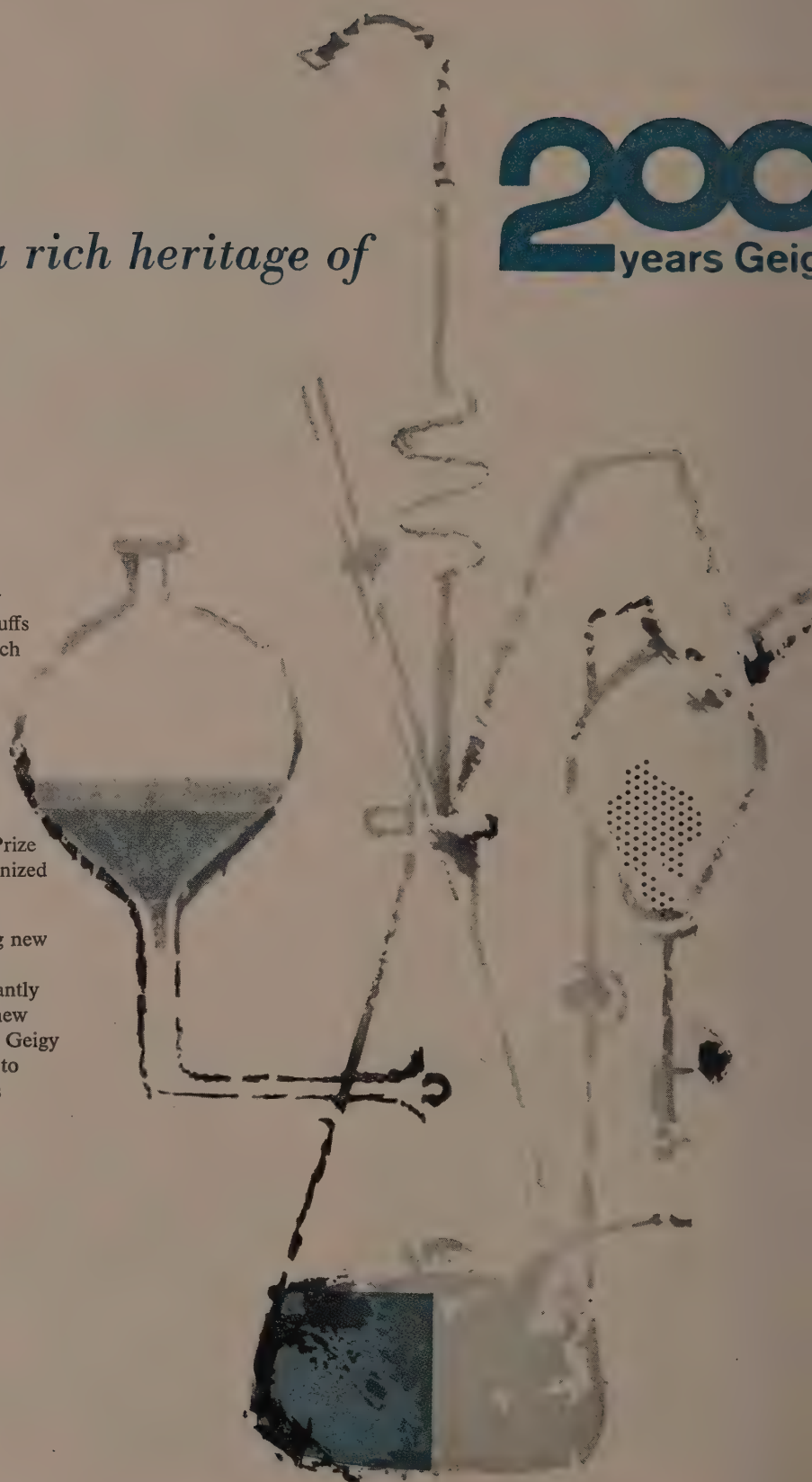
Of major importance at this

**"Bill" Buettner**
*NPCA Executive Secretary, 1934-53*

**Dr. Ralph E. Heal**
*NPCA Executive Secretary, 1953—*

*out of a rich heritage of*

200 years Geig



For 200 years, the name of Geigy has stood for quality in the dyestuffs trade. More recently, Geigy research has also brought renown in the field of pesticides.

Research in the field of moth damage prevention resulted in "Mitin" durable mothproofing. Then came the discovery of DDT insecticides, which won a Nobel Prize for Dr. Paul Müller and revolutionized the pest control industry.

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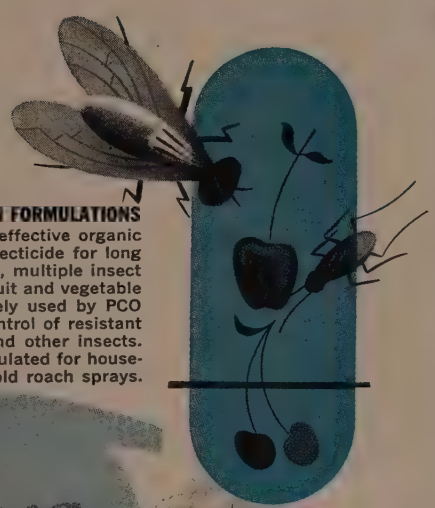
*come more effective pesticides from Geigy Research*



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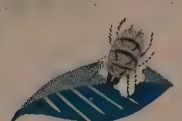
Versatile effective organic phosphate insecticide for long residual fly control, multiple insect control on many fruit and vegetable crops. Extensively used by PCO industry for control of resistant roaches and other insects. May be formulated for household roach sprays.

**GEIGY DDT**
Used for compounding insecticides for pest control throughout the world. Controls a wide range of insects on ornamentals, vegetables, fruit, livestock, cotton and in forest areas.

**METHOXYCHLOR FORMULATIONS**
Multi-purpose insecticide. Long residual action against many insect species attacking fruit, vegetable, forage crops, and stored grain. Controls horn flies, cattle lice and ticks on livestock.

**SIMAZINE® 50 W HERBICIDE**
New herbicide for use on corn. Applied pre-emergence, one application gives season-long effective weed control. Also for pre-emergence use on nursery stock, and at higher levels of application, as an industrial herbicide. Extremely low toxicity to humans and animals.



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Safe, effective miticide for use on deciduous and citrus fruit, ornamentals and nursery stock. Long residual action.

**SEQUESTRENE® METAL CHELATES**
Original metal chelates in agriculture. For correction of minor element deficiencies of ornamentals, fruit trees, vegetables, turf. Compatible with most commonly used insecticides, fungicides, fertilizers.

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**in Homes . . . . Stores . . . . Restaurants**
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MALRIN MAY BE USED WITH NEARLY EVERY TYPE OF EQUIPMENT - as Wet Spray . . . . Fog or Mist . . . . Dust . . . . Spray Bait

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MALRIN is the safest formulation available, with respect to humans and warm-blooded animals. May be used in nearly every type of environment, and for direct application on dogs and cats.

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**Robert L. Showalter**
*Executive Assistant*

**Dr. Philip J. Spear**
*Technical Director*

**Thomas H. Mahon**
*Assistant to the Executive Secretary*

first meeting and at other early industry conventions was the fact that PCOs were getting acquainted with one another and, for the first time, learning to pool their experience and knowledge of pest control methods. These meetings were devoted largely to organizational efforts for conventions, conferences, and state meetings. In all of these, national and local leaders held a prominent hand — not over-all like Bill Buettner — but nevertheless influential, as various local problems were tackled.

From the first year of the National, the value of the exchange of information became apparent. PCOs wanted to know more about business, particularly concerning costs, advertising, and insurance as they influenced sound pricing. And they wanted details on new chemicals. The demand for technical information was evidenced by the popularity of "Questions and Answers," contained in the National's early Service Letters.

These industry needs meant a busy time for Buettner. Even his "vacations" were crowded with industry matters. Several months after the first convention while he was taking a well-earned breather, he wrote industry associate N. K. Concannon, Executive Secretary of the Society of Exterminators and Fumigators of New York, Inc.:

*Dear Nate:*

A few days of pleasant and needed rest. It is indeed refreshing and doing me much good, have abandoned all thoughts of work and worry. Wish you were here.

Hastily,
*"Bill."*

*P.S.* Expect to be home soon, but wire me if anything comes through from Sam Bogorad in Washington (on the NRA code).

Check up on the insurance situation, we've got to get this through for the industry.

Keep in close touch with the New Jersey Pharmacy Act and "shoot" along any important developments.

Watch Section 104—there should be action there any day now.

Send me the new Springfield, Illinois ordinance, it will give me something to do.

Anything from T. C. Raley on the convention?

Cordially yours,
*"Bill."*

## First Year: 4212 Letters!

Despite this hectic, bone-tiring schedule, Buettner served the Association without pay that first year and continued to do so until he was appointed full-time secretary in 1946. Only expense in the 1933-34 year was for letterheads, postage, and other incidental costs, and for a part-time stenographer to type and mail the 350 letters a month Bill wrote that first year. (Commented Theodore Oser, Oser Pest Control, Inc., Atlanta, Ga., before Bill's death: "Bill can write more letters than I can read.") Largely through Buettner's direction, the Association also mailed out 12 national releases to members in 1933.

Buettner's writing capacity was probably equalled by only one other man in the industry, William Martin of St. Louis. Martin authored an elaborate 352-page argument shortly after the 1933 convention, explaining why the second meeting should be held in St. Louis. Enthusiasm of this nature could hardly be ignored, so St. Louis was picked as the 1934 convention site.

## 68% of the Industry Belonged

By the time the Association's second convention rolled around in October 1934, the National could claim 222 members or 68%

**New car was presented Bill Buettner at a banquet** during mid-1940's in New York's Hotel New Yorker, attended by PCO, government, and other officials. Shown are, kneeling, J. J. Hess, (left) Herb Meyer; (first row) Dr. E. Bocher, Chemical Fumigation Bd., New York, E. Mills, U. S. Fish & Wildlife Service, Ted Oser, Buettner, Dr. S. A. Rohwer, USDA, an unidentified Navy official, H. A. Nelson, insecticide assn. president, and Ned Goldy; (back row) Harold Shepard, A.M.W. Carter of Canada, unidentified guest, Bud Jennings, Dr. R. C. Roark, USDA, and Sidney Wimmer.

### Meeting Sites For NPCA Conventions

(1933) Washington, D.C.
(1934) St. Louis, Mo.
(1935) Detroit, Mich.
(1936) Cleveland, O.
(1937) Memphis, Tenn.
(1938) Omaha, Neb.
(1939) New York, N.Y.
(1940) Indianapolis, Ind.
(1941) San Francisco, Calif.
(1942) Pittsburgh, Pa.
(1943) St. Louis, Mo.
(1944) Chicago, Ill.
(1945) Cincinnati, O.
(1946) New Orleans, La.
(1947) Philadelphia, Pa.
(1948) Toronto, Canada
(1949) Los Angeles, Calif.
(1950) Cincinnati, O.
(1951) Boston, Mass.
(1952) Houston, Tex.
(1953) Minneapolis, Minn.
(1954) Miami Beach, Fla.
(1955) Denver, Colo.
(1956) Detroit, Mich.
(1957) Louisville, Ky.
(1958) Washington, D.C.

of the industry, representing 22 states, District of Columbia, and Canada. At this second meeting, Buettner stepped down as president and became secretary. He was succeeded to the presidency by Thomas C. Raley. Other new officers installed for fiscal 1934-35 were vice presidents J. M. Miller, J. M. Miller's Pest Control System, Inc., Los Angeles, Calif.; B. W. Eldredge; Martin T. Meyer; H. O. Abel; and C. Norman Dold. Steckel was reelected treasurer.

At the St. Louis convention in 1934, Chicago's C. Norman Dold stressed the public recognition value of having an Association slogan and suggested: "Don't Tolerate—Exterminate." Used by Vogel-Ritt Agency of Philadelphia in 1930, it clicked with the Association membership and was adopted as the National's slogan, once permission was obtained from Vogel-Ritt. At the suggestion of vice president Miller, the slogan was later changed to "Don't Tolerate—Sanitate."

In the second year, 23 releases were sent from the Association's Brooklyn - based headquarters, and correspondence had increased so sharply, Bill could not even estimate the volume in terms of individual letters. With this heavier work load, the operating expense crept from $590.50 the first year to $1,386.15 the second.

But receipts, likewise, doubled and so did enthusiasm for the conventions. Case in point: T. C. Raley, who was so preoccupied with thoughts of the 1935 meeting as he departed for the Detroit convention site, he put alcohol in his car's crankcase and oil in his radiator. Result: breakdown in Granite City, Ill.

At the 1936 Cleveland convention, Bartlett W. Eldredge succeeded 1935-36 prexy C. Norman Dold; the Association could claim 307 paid members; 35 more membership service letters had been mailed out; and Bill's glut of correspondence was dammed up in 2½ filing cabinets.

#### 1936: Short Courses Are Born

Among many attending their first national convention in Cleveland that year was Professor John June Davis, "Professor Pest Control," who was then head of Purdue University's Department of Entomology. He had an idea for a pest control short course he wanted to discuss with Buettner and the Association membership. NPCA members immediately recognized the need for such a conference, since, as George Elliot of Ransford Pest Control, Worchester, Mass., explains: "The early national conventions became so increasingly crammed with technical reports that it was obvious they were inadequate to meet the demand of the industry." Just 2½ months after Professor Davis suggested the conference idea, the first Purdue University Pest Control Operators Conference was held, in January 1937. It was sponsored jointly by the Purdue Department of Entomology and the National Association of Exterminators and Fumigators, Inc. This short course was the first of the National's sponsorship of regional conferences. It was followed by Eastern (1941), Southern (1941), Canadian (1943), and Pacific Northwest (1950) Conferences.

These regional sessions not only fill a technical need of the industry, but, like the National Convention, also provide a valuable opportunity for personal contacts among PCOs, as well as with college and Government researchers.

#### NAE&F Becomes NPCA in 1937

With a membership close to 400 in the U.S. and foreign countries, the National conducted a special "meeting by mail" later in 1937 on the resolution that was to change the name of the organization to the National Pest Control Association. Only 27 members opposed the change, compared with 263 in favor. The change technically became effective August 1, 1937, but the formal adoption was delayed until after the 1937 convention in Memphis, Tenn.

As the NPCA's membership steadily expanded in the next few years, the work load became too much for one man, a secretary, and part-time help to handle.

"The secretary's office is undermanned in trying to keep up with the daily incoming mail that conservatively never runs below 30 letters daily," Buettner told the membership at its 1941 meeting in San Francisco, Calif. "Only one paid stenographer-typist, aided at times with both voluntary and part-time assistance, handles the voluminous correspondence."

In addition to all this mail during fiscal 1940-41, the NPCA also mailed out 42 membership Service Letters, totalling 186 mimeographed pages; plus another 18 special letters, totalling 36 pages.

#### Ration Points, WPB and PCOs

And the impending war was to bring Buettner even more work, since the industry was almost immediately confronted by the threat of material shortages following the outbreak of hostilities. Such a crisis could have seriously crippled the industry, setting it back 10 or 15 years, but Buettner went to bat in Washington and se-

### NPCA Presidents And Years They Served

*William O. Buettner (1933-34)
*Thomas C. Raley (1934-35)
C. Norman Dold (1935-36)
Bartlett W. Eldredge (1936-37)
H. K. Steckel (1937-38)
*H. G. Irving Sameth (1938-39)
*Walter J. McCloud (1939-40)
*L. R. Alderman (1940-41)
*P. Calvert Cissel (1941-42)
F. E. Bohman (1942-43)
George R. Elliot (1943-44)
Theodore Oser (1944-46)
J. Harvey Sturgeon (1946-47)
George L. Hockenyos (1947-48)
V. H. Montgomery (1948-49)
Harold E. Jennings (1949-50)
J. Edwin Sameth (1950-51)
Robert C. Yeager (1951-52)
J. Wilfred Gunn (1952-53)
A. E. Ritt (1953-54)
Harlem B. Ives (1954-55)
I. B. Carncross (1955-56)
Myron W. Smith (1956-57)
J. C. Redd (1957-58)
*Deceased

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*Progressive Chemicals for Industry*

# Best Wishes on Your 25th

**We wish to congratulate you on your progress of the past 25 years. May we wish you many more "Silver Anniversaries."**

**We are truly proud of the opportunity to be a supplier to your industry. We try at all times to provide the very best in chemicals and equipment.**

**We pledge our total effort to continue to bring to you better chemicals, faster service and fairest prices.**

**Please visit us in Booth No. 14 and get your complimentary jar of "Softee" Hand Cream.**

**Sincerely yours,**
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**William O. Buettner**
*(President, 1933-34)*

**Thomas C. Raley**
*(President, 1934-35)*

**C. Norman Dold**
*(President, 1935-36)*

**Bartlett W. Eldredge**
*(President, 1936-37)*

cured special ration points for PCOs. This assured them of baits, gasoline, tires, repair parts for autos and equipment, arsenic, pyrethrum, sodium fluoride, strychnine, paradichlorobenzene, and thallium sulphate. Equally important, the industry gained new prestige through the Government's recognition of its war-time importance. Pest control operators represented one of only a few industries to be Federally classified a war-time "essential."

But the National's job didn't end there. The emphasis in its Service Letters shifted from business and technical subjects and more toward measures that would assure the welfare of the industry under Governmental controls. Service Letters coped with problems that arose from war-time restrictions on tires, gasoline, pesticides, and supervisory and service personnel.

During this hectic period, Buettner divided his time among the War Production Board, his pest control business, and NPCA responsibilities—any one of which could be considered a full-time occupation. Between October 4, 1944 and August 10, 1945, he made 14 trips to Washington, each averaging two days and several taking three days. Likewise, between November 5, 1944 and September 23, 1945, he attended 36 industry conferences or meetings all over the country, which kept him away from the office another 101 days.

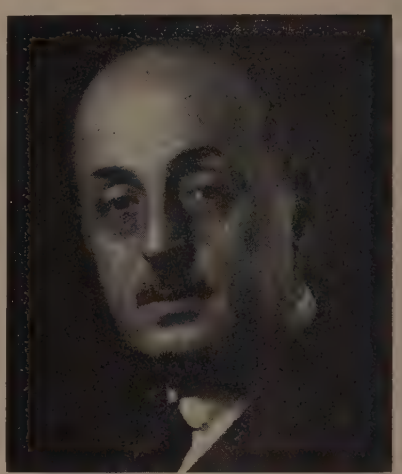
### Move to New York Decided

Despite this sharply increased work schedule which demanded more and more of Buettner's time, a move to larger quarters in New York was not discussed actively by the membership until the 1946 convention in New Orleans. Bill was named full-time Association Executive Secretary just prior to the New Orleans Convention, but it was not until 1948 that the Association formally voted to re-base its headquarters at 30 Church Street in downtown New York City.

### Heal Becomes Technical Director

The move finally came in December 1949. With the change of address, Dr. Ralph E. Heal, current NPCA executive secretary, was hired as technical director. This technical expansion of the

**H. K. Steckel**
*(President, 1937-38)*

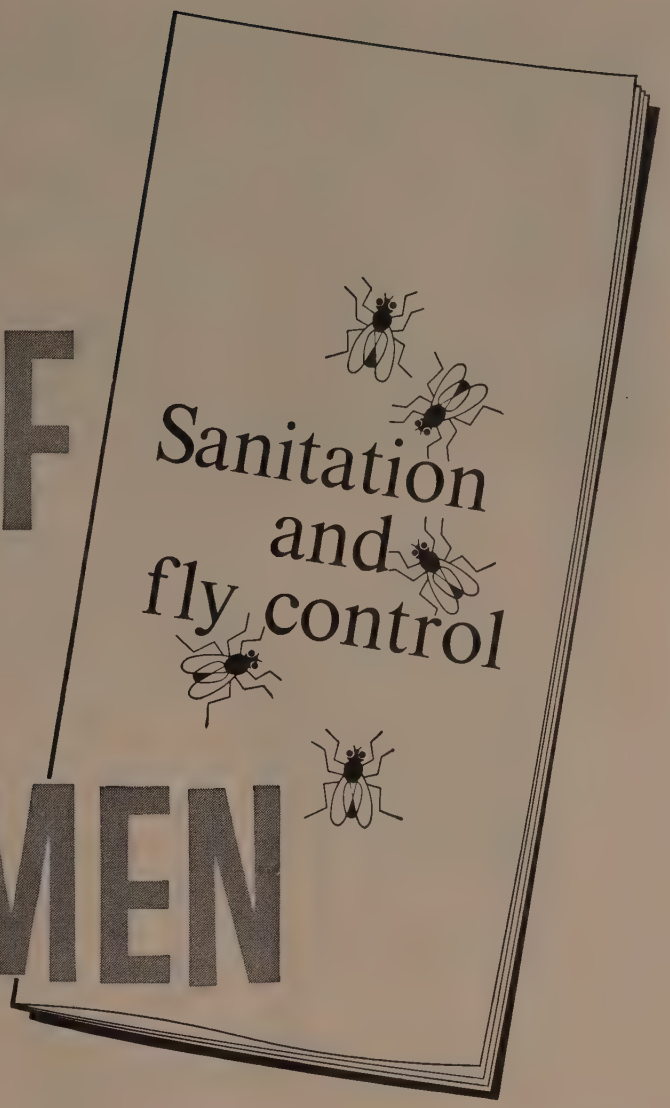


**H. G. Irving Sameth**
*(President, 1938-39)*

**Walter S. McCloud**
*(President, 1939-40)*

**L. R. Alderman**
*(President, 1940-41)*

# HERE IS ONE OF YOUR SALESMEN




You may not recognize this booklet. But it has been working for you for more than six months—calling on hot prospects who write to us for information—selling them on the importance of proper sanitation practices and fly control.

One of its pages concentrates on selling Lethalaire. This economical, effective method of fly control has gained wide acceptance and proved itself the ideal choice for fly control wherever food or food products are handled. The booklet ends with a strong appeal for the reader to contact his nearest established pest control operator, for fast, efficient service.

Thousands of copies of this booklet have already been circulated among supermarkets, restaurants, groceries, delicatessens, and food packaging and processing firms. So the "nearest operator" contacted by the prospect may well be *you*. If you want to take advantage of pre-sold prospects and stock them up on Lethalaire, better get the whole story on this action-getting promotion.

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**Stop in and see us at the National Pest Control Association Show in Washington, D.C., October 20-23 . . . Booth Number 4.**

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*(President, 1941-42)*

**F. E. Bohman**
*(President, 1942-43)*

**George R. Elliot**
*(President, 1943-44)*

**Theodore Oser**
*(President, 1944-46)*

**J. Harvey Sturgeon**
*(President, 1946-47)*

NPCA was probably one of the membership's most significant decisions.

The unexpected death of Buettner on September 6, 1953, at the age of 55, brought on a period of critical importance in the administration of Association affairs. The smooth transition during this crisis is due largely to the efforts of J. Wilfred Gunn of Hollywood Termite Control, Los Angeles, then president of the NPCA. Stepping into the breach created by Buettner's death, Gunn left his pest control business in California for several days to help Dr. Heal at Association headquarters keep the administration on an even keel in these trying times. It wasn't long before the Board of Directors picked Dr. Heal—then 46 years old—as the man to assume the executive secretary's duties.

When the membership and Board of Directors determined it would be more advantageous for the Association to have its own headquarters building, they decided to dedicate it to the memory of Bill Buettner in honor of the countless personal sacrifices he made for the Association before his death. Located at 250 West Jersey Street in Elizabeth, N. J., the spacious 12-room Tudor mansion that now houses NPCA administrative offices was dedicated in June 1957.

The executive staff there includes Dr. Heal; Dr. Philip J. Spear, technical director; Robert L. Showalter, executive assistant; and Thomas H. Mahon, assistant to the executive secretary. Dr. Heal obtained his Bachelor of Science and Arts degree in entomology - zoology from Ontario Agricultural College in 1934, took his M.S. and Ph.D. degrees in entomology from Rutgers University. With his wide background in chemical research and development, Dr. Heal has been strong in raising the technical level of the industry. Dr. Spear, who became technical director when Dr. Heal was moved up to executive secretary, likewise, has a broad research and academic background. He is 43 years old. Showalter, 49, came to the NPCA in January 1957. He is equipped with in-the-field industry experience and is a past director and regional vice president of the NPCA.

The member of the NPCA's executive staff with the longest seniority is Mahon, 49. He worked for Bill Buettner when Association headquarters were still located in Brooklyn. Operating the Bittel Letter Service, Mahon handled all the National's direct mail out of an office in the Bronx from 1933 until December 1942. Then he sold his interest in the business, registered his own Mahon Letter Service in Brooklyn, and began working on a fee basis for the National, sharing space at Association headquarters at 3019 Fort Hamilton Parkway, in Brooklyn. At the NPCA's Los Angeles convention in 1949, the Association voted to hire an assistant for Buettner, and Bill chose Tom Mahon. This made Mahon a full-time employee on a straight salary basis.

### Origin of "Code" in NRA Days

Of the many programs directed from this New Jersey headquarters and other earlier offices in New York and Brooklyn over the last 25 years, probably the most important from the standpoint of over-all industry betterment was the NPCA's campaign to secure a Code of Fair Competition. This was the original purpose for establishing the National in 1933.

Like hundreds of other industry codes formed as part of President Roosevelt's NRA recovery program (700 were ultimately approved before the Supreme Court threw out the NRA in 1935), the

# NOW REGISTERED!!!

## Donaco TRACKING POWDER

P. M. P.

(ANTICOAGULANT)

**Available in Any Quantity!**

**For use by Professional Pest Control Operators Only**

**$2.50-less 10%**

PER POUND
PACKED IN
RE-CLOSABLE
FRICTION-TOP
5 LB. TIN CANS.

For the past year and a half Donaco Tracking Powder has been used by pest control operators with spectacular results. Until now Donaco Tracking Powder has been available in limited quantities only. Now you can order this revolutionary rodenticide in any quantity you require!

Donaco Tracking Powder is superior to conventional baits in that its effectiveness is not subject to the changing, unpredictable appetites of rats and mice. Also, where edible baits fail, tracking powder is highly successful as a clean-up measure for marginal feeders.

P.M.P. Tracking Powder has been used successfully by the U.S. Fish and Wild Life Laboratory and pest control operators. The remarkable effectiveness of Donaco Tracking Powder, plus its low cost, make it the No. 1 buy in the rodenticide field. Send in your order now.

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*(President, 1947-48)*

**V. H. Montgomery**
*(President, 1948-49)*

**Harold E. Jennings**
*(President, 1949-50)*

**J. Edwin Sameth**
*(President, 1950-51)*

Code of Fair Competition drafted by the Association at its first meeting in 1933 covered hours, wages, general labor-management relations, advertising, etc. Through the NRA and its encouragement to trade associations, President Roosevelt sought to assure various industries a higher price structure by clamping down on competition through standardization of business practices.

### Servicemen: $17-$21 a Week

An important part of this standardization for the PCO was to be a sliding pay scale for servicemen. For cities with a population over 500,000, servicemen had to be paid at least $21 weekly; "helpers" or apprentices had to receive $18 a week. In cities with under 250,000 persons, the base pay for servicemen was set at a scant $17 a week compared with $14 a week for apprentices. There was even a list of 17 cities included in the proposed code where the scale was 10% lower.

A major controversy of the NPCA's proposed code was tied up with NRA's near-demand for flat rates on certain pest control jobs. The Code of Fair Competition adopted by the Society of Exterminators and Fumigators of New York, Inc. prevented PCOs from soliciting business by advertising, where a flat scale of prices was used. And this code reflected the sentiments of many operators around the country.

Trying to smother competition and keep prices aloft for U.S. industry in general, the NRA argued, however, that under a flexible price schedule (1) the minimum rate would immediately become the maximum rate once companies began advertising their rates indiscriminately; (2) PCOs would lose their so-called "plums" because realtors, owners, management operators, etc. would expect a minimum rate; (3) such a minimum price would appear to be the basis for such rates, allowing for a fair profit at the bottom of the scale, hence the PCO should confine himself to the bottom rates; and (4) such fixed pricing would automatically require a stiffened enforcement program, which could only be conducted on a Federal scale.

### Fumigations: $5 per 1,000 cu. ft.

However, the need for some form of price regulation appeared evident because of the wide range of prices charged by PCOs around the country. For fumigations, members of the Ohio Exterminators Association had to charge at least a flat $5 rate for fumigating 1,000 to 2,000 cubic feet. At the same time, the minimum rate for the Society of Exterminators and Fumigators of New York, Inc. was $25 for the first 1,000 cubic feet and $2 for each additional 1,000 cubic feet.

Where warehouses, factories, or stores were under fumigation, the Ohio minimum rate remained a flat $5 per 1,000-2,000 cubic feet, but the New York rate was hiked to $30 for the first 1,000 cubic feet, and $3 for each additional 1,000 cubic feet until 50,000 cubic

**Robert C. Yeager**
*(President, 1951-52)*

**J. Wilfred Gunn**
*(President, 1952-53)*

**A. E. Ritt**
*(President, 1953-54)*

**H. B. Ives**
*(President, 1954-55)*

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*Agricultural Chemical and Insecticide Division*

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**I. B. Carncross**
*(President, 1955-56)*

feet were reached. Then the price per 1,000 cubic feet was adjusted lower. Of course, the Ohio Association regulations contained an escape clause: "Where fumigating for any insect that requires two, three, or four times as much gas as the ordinary insect, the prices above should be doubled."

This price controversy and the Supreme Court's 1935 action declaring the NRA unconstitutional were not the only factors which blocked approval of the National's 1933 code. The Association's demand for a 44-hour week for members of the industry instead of the NRA-recommended 40-hour week also helped put the proposed code in the New Deal deepfreeze. Another obstacle was the heavy personnel turn-over within the NRA itself. This meant that Buettner and the industry had to deal with three different assistant deputy administrators, each of whom had to be convinced on the value of certain aspects of the industry's code.

It wasn't until 1937 at its Memphis, Tenn. convention that the Association finally drafted its own Code of Ethics, a five-point blueprint for business based on the general principles underlying the longer Code of Fair Competition that had been proposed to the NRA:

**Relation of Member to Public:** The Member in his advertisements or other solicitations of business shall not use tricky, fraudulent, or misleading wording or methods.

**Relation of Member to Client:** The Member shall thoroughly analyze the requirements of his clients and shall conscientiously recommend the means best suited for the clients' needs.

**Professional Services:** The Member upon accepting a contract or service agreement shall render skilled, intelligent, and conscientious service.

**Relation of Member to Competitor:** The Member shall not publicly criticize the business or private affairs of a competitor.

**Relation of Member to Association:** The Member shall be loyal to the principles of the Association and active in its advancement.

## PWA: Free Pest Control

Another major campaign of the NPCA — and probably second in importance only to the writing of its Code of Ethics—also involved

**Myron W. Smith**
*(President, 1956-57)*

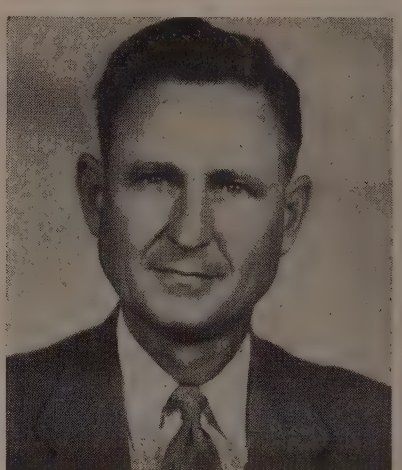
New Deal industrial policies during the early 1930's, specifically: the Public Works Administration and its free rat clean-up programs. Like much of President Roosevelt's New Deal legislation, his PWA program nullified gains for the PCO he had made through other industrial recovery laws. While PWA offices put transients to work trapping rats for four or five hours a day in exchange for three meals and a night's lodging, the commercial PCO was deprived of a major source of business.

"We are not in disagreement with laudable efforts in the direction of rat extermination," Buettner protested to the PWA in mid-December 1933, "but we must emphatically protest when such efforts mean a loss of work which rightfully belongs to an established industry trying to do its best to cooperate with the NRA by making room for greater employment in terms of steady or permanent employment."

The following year, the PWA program was expanded sharply. The Government's Bureau of Biological Survey and U. S. Public Health Service blueprinted a typhus fever control project for the South that was to cost over $1 million and require 7,033 men. It ultimately destroyed 7½ million rats in Georgia, Alabama, and Texas. Another program in Chicago alone cost $393,359 and took 554 men off relief rolls.

A letter to the editor of the Milwaukee Journal concerning a Milwaukee PWA program typified public ignorance of the rat clean-up's implications from the safety standpoint: "Doggone it! Now we're getting somewhere! The cost is to be only $300,000 a year and the beauty of the scheme is that it won't cost us one red copper, because our grand Uncle Sam will foot the bill. And, as everyone knows, he can print up as many greenbacks as he likes, or our county board wants."

The PWA clean-ups took on an even more distressing aspect when they were extended outside the perimeters of relief to include school children. In 1935, the County Extension Service in Concord, Mass. "occupied" hundreds of Middlesex County youngsters on Halloween night by giving



**J. C. Redd**
*(President, 1957-58)*

them poison baits to distribute around the county, thus deflecting some of their Halloween energies into "constructive" channels. This brought a 30,000 to 40,000 rat-kill.

## 65,000 Traps But No Cheese

Yet industry efforts in this early stage were not without results. In 1934, there were a lot of red faces in New York's City Hall after 65,000 traps had been purchased and a lobby for New York PCOs in Washington blocked the

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**8 ounce**
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Protects clothes and skin

- √ **Comfortable**
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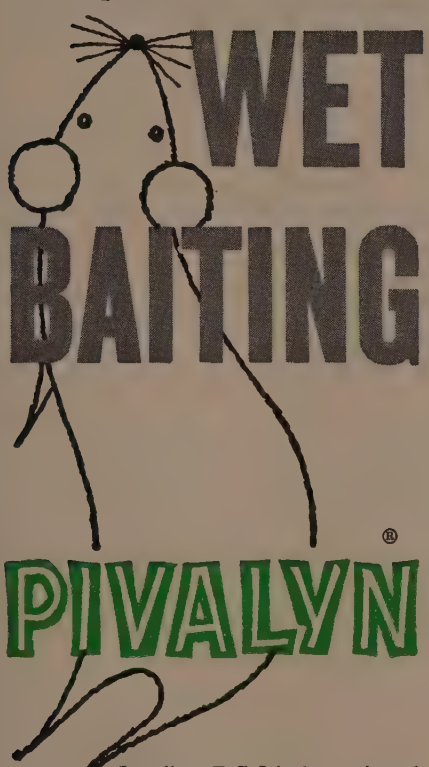

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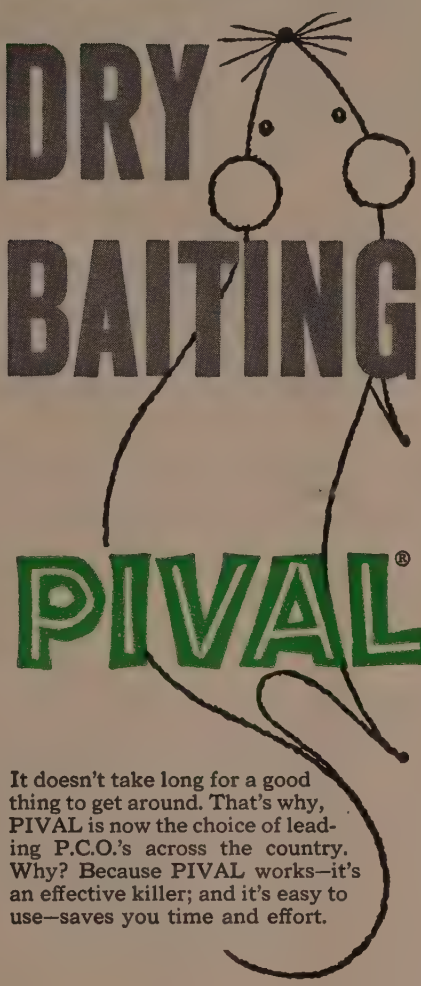

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It doesn't take long for a good thing to get around. That's why, PIVAL is now the choice of leading P.C.O.'s across the country. Why? Because PIVAL works—it's an effective killer; and it's easy to use—saves you time and effort.

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money appropriation for cheese to bait the traps. Another program in Brooklyn was abandoned a short time later after the Brooklyn Daily Eagle revealed that the Government campaign was costing $70 per rat caught there.

In addition to the high cost of the program and the fact that PCOs were losing business, the approach was all wrong. Wrote a Chicago Tribune columnist: "The method of handling the work definitely puts the cart before the horse. While the health department spends $100,000 per month placing rat baits throughout the city, the actual breeding place of the rats in the garbage filled alleys remains untouched, and city dumps continue to be rat breeding grounds without serious attention given to eliminating the causes of the problem."

As the PWA program increased in dimension after 1934, Buettner finally wrote President Roosevelt in protest. By 1936, there was an evident letdown in the program. It was not until 1938, however, that Buettner was notified by the Government that as soon as current authorizations ran out, no more funds would be allocated for projects.

### Primitive Advertising

Although advertising claims by a few PCOs still are of questionable validity, standards of industry advertising also have advanced considerably since the 1930's, under the direction of the NPCA.

### NPCA Goal: Industry Education

However, these campaigns have been only a small part of the NPCA's program for industry improvement in the last 25 years. Under the direction of Bill Buettner and Dr. Ralph Heal, the National Pest Control Association has generally sought to broaden the base of education within the industry by translating the technical principles of pest control into easy-to-understand terms for PCOs. This has been accomplished through distribution of over 1,000 membership Service Letters and Technical Releases; sponsorship of five regional conferences a year; and preparation of dozens of publications and brochures. Major publications printed by the NPCA include the **Approved Reference Procedures for Termite Control; Clinical Memoranda on Economic Poisons; Restaurant Pest Control Bulletin; Servicemen's Manual; Manual of Parasitic Mites**; Chemical and Entomological sections of **Pest Control Technology; Bird Repellents and their Modification for Use as Animal and Insect Entanglants;** and **Order Isoptera — The Termites of the United States and Canada,** written by Dr. Thomas E. Snyder, world authority on wood-destroying insects.

**Bill loved his fun.** Enjoying "Bill" Buettner's cigar almost as much as he is, are left to right, PCOs Charles Riess of Winnipeg; the late Henry Smith of St. Paul; and Bill's wife, Helen. The picture was snapped at an early Association meeting held in Pittsburgh, Pa.

In addition to the ARPs of subterranean termite control, the NPCA currently has in preparation an ARP to cover termite soil poisoning.

These Approved Reference Procedures involve a knowledge of entomology as it relates to identification, life cycles, and habits of pests; a knowledge of the chemistry and toxicology of insecticides; an understanding of the principles of construction and sanitation; and procedures of treatment, with special reference to safety practices. Experience has taught the PCO who follows the ARPs of termite control that there is no substitute for accurate analysis, sound technique, and skillful application.

From its Elizabeth, N. J. headquarters, the NPCA directs Association committee research all over the country. Among other NPCA-financed projects now underway is one at the Virginia Polytechnic Institute in Blacksburg, Va. There Dr. James M. Grayson, working on an NPCA grant-in-aid, is testing the effectiveness of various candidate insecticides for the control of resistant roaches.

Besides results of this research, specially prepared photographs and Kodachromes of insects for identification are available to NPCA members. Once a PCO joins the NPCA, he gets a framed membership certificate, cuts and decals of the membership seal, and a "Code of Ethics" plaque.

### Sponsors $200 Scholarship

To encourage college enrollment for youngsters who feel they would like to enter the industry, the NPCA established a $200 annual scholarship fund at Purdue for students taking the four-year pest control course there. Joint winners of the first award in 1947 were William Brehm, now of Hygienic Sanitation Co., Philadelphia, Pa., and George Gilmore, until recently associated with L. A. Moore & Co., Utica, N. Y. Their scores on the scholarship test were so close, the first-year fund was split between them. The university's four-year pest control course at Purdue was established in 1946 at the request of the NPCA and various individual PCOs.

Just as Bill Buettner is associated with early industry gains made in general business ethics and advertising, Dr. Ralph Heal has become identified with the NPCA's program for technical advancement and certification of termite operators engaged in soil pretreatment work. The NPCA hopes to establish minimum standards for termite pretreatment work, under which results would be guaranteed and certified by the termite operator.

Another major NPCA program in Dr. Heal's administration, this one now a reality, is the Association's new group life insurance plan, which went into effect May 1. Trustees of the fund are A. E. Ritt, Vogel-Ritt, Inc., Philadelphia, Pa.; F. E. Bohman, a director of the Birchard System, Inc., Hartford, Conn.; and Justin Simon, General Exterminating Corp., New York, N. Y. Such a group life insurance program was one of only many key Association aims of Dr. Heal when he became executive secretary in 1953.

### Credit to Committees, Members

But credit for the real progress of the Association goes to the devoted efforts of members and officers who have brought to it their experience and dedication to further the NPCA's program of industry service.

Interest by Association members in advertising and public relations has been stimulated primarily by George R. Elliot, Ransford Pest Control, Worchester, Mass. (President, 1943-44), and Jacques J. Hess, Exterminating

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**Pest Control: 1931-style.** This early vehicle, used by a Hollywood, Calif. termite operator when the industry was just getting established, featured a trailer mounted ¾ h.p. compressor.

Services Corp., New York, N. Y.

In the early years of the Association, George Hockenyos, Sentinel Laboratory, Springfield, Ill. (President, 1947-48), provided much of the technical information contained in Association Service Letters.

Harold Jennings, Smithereen Co., Chicago, Ill. (President, 1949-50), is chiefly responsible for the present democratic system of electing representatives to the Association's Board of Directors. Through Jennings' efforts, members in each region are now responsible for nominating and electing their own Board representatives.

A. E. Ritt, Vogel-Ritt, Inc., (President, 1953-54), contributed to the guidance and direction in Association administration during Dr. Heal's first year as executive secretary.

And it was during the term of, and with much credit to, I. B. Carncross, Syracuse Chemical Co., Syracuse, N. Y. (President, 1955-56) that the Association was able to finance and later to move to its own headquarters building in Elizabeth, N. J. with a minimum of delays and disruption of activities.

Likewise, NPCA committees have been hard at work for members. "Technical" committees have contributed appreciably in field evaluation of new pesticides —including anticoagulant rodenticides, organic phosphates, and termite soil toxicants. Through various committees, working closely with chemical suppliers, the Association shifted its emphasis from war-time problems to industry technology even before World War II was over; had the facts on DDT in 1944-45; 1080 and ANTU in 1945-46; and chlordane in 1946.

"Without the backing of our committees and the experience they represent," Dr. Heal says, "opinions of our spokesmen and our staff would not be authoritative. The termite certification program, the bird management program, in fact about all we can lay claim to in recent years has been made possible by committee and member support."

The ARPs developed under Sentinel Laboratory's George Hockenyos, and Arthur H. Ochs, Antimite Termite Proofing Co., St. Louis, Mo., was a "committee" project. Hockenyos also was instrumental in preparing the text for the Servicemen's Manual, and now is at work on a Bird Control Manual.

Bartlett W. Eldredge, Waltham Chemical Co., Waltham, Mass. (President, 1936-37), is the NPCA member who directed committee work which established the Association's good domestic fumigation practices.

J. Edwin Sameth, Western Exterminating, Mountainside, N. J., (President, 1950-51), and his finance committee were responsible for reorganizing the Association and putting it on a more business-like footing.

"The goal of the Association in the coming years will continue to be that of providing service to its members in the interest of advancing the pest control industry," Dr. Heal states. "The program will continue to be dictated by the needs of the members. At present, we can foresee a continued expansion of the demand for freedom from pests. And only a continued improvement of the quality and availability of our service work can meet this demand."

The following programs appear to be logical developments in the evolution of the NPCA, Dr. Heal feels.

**1. Expansion of training aid,** especially for the serviceman, is a certainty. The expanding awareness of the need for pest control measures applied with full consideration of public safety and convenience will enforce major demands on our industry. The Association undoubtedly will continue and expand its 'extension' program so that we may not only meet, but anticipate, these demands.

**2. Service on business problems** of the industry will undoubtedly become a major phase of the Association's program, covering such fields as accounting, cost analysis, sales promotion, advertising, insurance, and personnel relations. We may even anticipate a 'Business Management Department.'

**3. A constant growth of our present technical program** can be predicted. Already there are demands which justify expansion, and the limitations of effectiveness which are developing for our pesticides, coupled with the evolution of new concepts of public safety, will undoubtedly intensify these demands.

**4. A Safety Program** under Association guidance also appears to be a logical development.

**5. The development of certification programs,** or the establishment of attainable industry standards, appears to be the best avenue for the opening of new fields of business through increased public confidence. These developments will bring with them expanded public relations, publicity, and advertising programs.

**6. The direct support of fundamental and applied research on industry problems** undoubtedly will be expanded under the Association program.

**7. We may well anticipate a closer coordination of the programs of State Associations with that of the NPCA,** even to the extent of joint support for field personnel serving on a state or regional basis.

"The nuclei of every one of the above programs for the future exist already in the present Association program," Dr. Heal says. "With normal development of our industry, we can reasonably expect them to be the 'bread and butter' activities of our Association over several years of the future. They offer a program which can be fruitful for the entire industry, and merits the support of every PCO."

**Pest Control: 1958-style.** Just as styles in pest control vehicles have changed in the last 25 years, demonstrated by the termite truck above, so to have styles of PCOs' offices and service equipment. At right is a panorama, showing representative pest control companies today.

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CONTROL
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"Hi-Fogs have many advantages: they are noiseless and cordless; insecticides may be used singly or in combination; either water or deobase oil may be used as a carrier. The Hi-Fog is a thoroughly 'Professional' unit that is not available at the local hardware, paint or nursery store. We've used Hi-Fogs for nearly 15 years."

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# Primer

## How's Your Vocabulary?: 10

As much a part of the PCO's standard equipment as sprayers and chemicals should be a knowledge of common entomological expressions and how to pronounce them. The list of terms and definitions below, originally formulated by the Entomology Department at Purdue University, is out of order to test your grasp of such words. Pronunciations below each expression have been added by PC's editors. Capital letters indicate where the emphasis is to be placed. Can you match them all up correctly? Answers are on page 100.

**1.** ___phylloph-agous *(figh LOF eh gus)*
**2.** ___phytopha-gous *(figh TOF eh gus)*
**3.** ___polyembry-ony *(pahl ee EM bree oh nee)*
**4.** ___posterior *(pahs TIER ee uhr)*
**5.** ___pre-(prefix) *(pree)*
**6.** ___predaceous *(pree DAY sh's)*
**7.** ___predator *(PRED a tor)*
**8.** ___pro-(prefix) *(proh)*
**9.** ___proboscis *(proh BAHS sis)*
**10.** ___pulvillus *(puhl VIL us)*
**11.** ___pupa *(PEW puh)*
**12.** ___puparium *(pew PAY ree eum)*
**13.** ___regurgita-tion *(ree gerj i TAY sh'n)*

**(a)** anterior, before, forward, fore, or forth.

**(b)** any extended mouth structure; usually applied to the extensile mouth of the Diptera, the beak of Hemiptera; sometimes to the tongue of Lepidoptera; and rarely, to the mouth of long-tongued bees; restricted to the labium in Diptera (MacGillivray).

**(c)** soft, pad-like structures between the tarsal claws; the cushions of short, stiff hair or other clothing on the underside of tarsal joints; rarely fleshy lobes.

**(d)** feeding upon plants.

**(e)** feeding upon leaf tissue.

**(f)** the production of several embryos from a single egg, as in some chalcids.

**(g)** the act of bringing up undigested, digested, or partly digested food into the mouth.

**(h)** before, in space, time, or degree; i.e., pre-pupa, a quiescent instar between the end of the larval period and the pupal period proper.

**(i)** any animal that preys on others.

**(j)** hind or hindmost; opposed to anterior.

**(k)** living by preying upon other organisms, as certain insects.

**(l)** in higher Diptera, the thickened, hardened, capsule-like larval skin within which the pupa is formed.

**(m)** the resting inactive instar in all holometabolous insects; the intermediate stage between the larva and the adult, loosely applied to all Orders; chrysalis, q.v.

**Answers on page 100**

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Mr. Charles S. Hallock
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You asked for a report on the effectiveness of Fumarin in controlling rats and mice...and here it is.

As you know, the big cost item in our business is labor, and—to use an apt analogy—unscheduled service calls can bleed us to death.

I am therefore delighted to report: not one unscheduled service call needed after using Fumarin!

I call this high praise, especially considering the length of time we have been using Fumarin. The rats and mice simply haven't built up an ounce of tolerance to the stuff...and they go on devouring it, blissfully ignorant of what it is doing to them.

In fact, the only more effective method of rodent control I know of is the one used down at Cape Canaveral, where they shoot their mice off in rockets, one at a time. Effective but dreadfully expensive. I'll stick to Fumarin!

Yours very truly,

VOGEL-RITT, INC.

Stephen A. Ritt
Vice-president

PIONEERS IN PEST CONTROL

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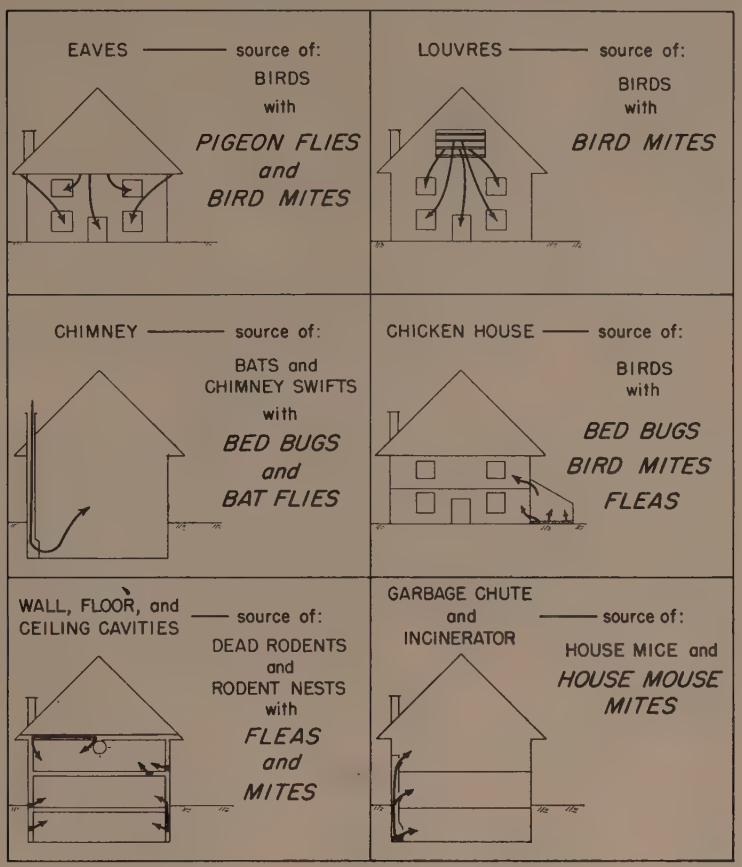
# Ectoparasites of

## • Birds
## • Bats and
## • Rodents
## and their control

**by DR. HARRY PRATT**

Chief, Insect and Rodent Control Section
Training Branch, Communicable Disease Center
Atlanta, Georgia

**Common Sources of Bird, Bat, and Rodent Ectoparasites Annoying to Man**


EAVES — source of: BIRDS with PIGEON FLIES and BIRD MITES
LOUVRES — source of: BIRDS with BIRD MITES
CHIMNEY — source of: BATS and CHIMNEY SWIFTS with BED BUGS and BAT FLIES
CHICKEN HOUSE — source of: BIRDS with BED BUGS BIRD MITES FLEAS
WALL, FLOOR, and CEILING CAVITIES — source of: DEAD RODENTS and RODENT NESTS with FLEAS and MITES
GARBAGE CHUTE and INCINERATOR — source of: HOUSE MICE and HOUSE MOUSE MITES

ECTOPARASITES of birds, bats, and rodents which are annoying to man include bedbugs, mites, fleas, and pigeon flies. Man frequently provides ideal situations for the production of these ectoparasites (see chart at right). The eaves, louvres, and attics of buildings provide nesting and resting places for pigeons, starlings, English sparrows, swallows, and other birds which are the normal hosts for pigeon flies, bird mites, and bedbugs. Chicken houses adjacent to homes may swarm with bedbugs, bird mites, and fleas. Rats and mice may occur throughout buildings from cellar to attic and be the original source of infestations of fleas and mites. Many of these ectoparasites cause painful bites and dermatitis and some of them, like the oriental rat flea, transmit important human diseases, such as plague and murine typhus.

For the purposes of this paper, let us discuss these four groups of ectoparasites separately, with particular attention to life cycles, hosts, and control measures.

### Bedbugs

The presence of bedbugs in a home or public building frequently is a cause of embarrassment or even shame to many people who associate these insects with filth or slovenly housekeeping. Therefore, the pest control operator who is called in to control bedbugs would be wise to consider all possibilities and to exercise considerable tact as he investigates complaints due to bedbugs in many of the better types of homes or buildings. In the United States, in addition to the common bedbug *(Cimex lectularius)*, the following species may be annoying to man: the bat bugs *(Cimex pilosellus* and *C. adjunctus)*, the chimney swift bedbug *(Cimexopsis nyctalis)*, the swallow bug *(Oeciacus vicarius)*, and the Mexican bedbug *(Haematosiphon inodorus)*. The studies by a number of investigators indicate that all these insects have life cycles essentially like that of the bedbug — with eggs, 5 nymphal stages, and adults. At least one feeding seems necessary before each moult, with several days for the digestion of the blood meal. Thus, the life cycles probably take at least a month under optimum conditions. The insects can survive starvation for long periods of time. Mallis (1954) reports that bedbugs have survived for a year or more in uninhabited houses by feeding on pigeons and English sparrows nesting there. Human infestations result from migrations into buildings of bat and chimney bedbugs through fireplaces, of swallow bedbugs from nests under eaves, and of ordinary bedbugs from pigeon and English sparrow nests, and chicken houses.

Control should be attempted first by removal or exclusion of the host, using methods such as screening of chimneys or removal of birds' nests from eaves or louvres. This may be followed with a standard 5% DDT spray applied at a rate of about 1 gallon per 1,000 square feet of surface. Emulsions or solutions may be used inside where staining is a consideration as in homes, school buildings, and similar structures. Water suspensions prepared from wettable powders may be preferable in chicken houses, barns, at-

tics, and similar situations where the whitish deposits need not be considered. Many know that bedbug resistance to DDT has been reported from many parts of the United States and other countries. Where the 5% DDT sprays are not effective, other standard insecticides, such as 0.5% lindane and 2% malathion, may be used for a wide variety of bird ectoparasites including fowl ticks, chicken mites, fleas, and bedbugs. As a last resort, if buildings are completely overrun by bedbugs and the buildings can be made reasonably tight, fumigation with hydrocyanic gas may be used *but only by a competent and licensed pest control operator.*

Since many of the species of bedbugs other than *Cimex lectularius* have not had long and repeated exposure to DDT, to develop insecticide resistance, it would seem wise to emphasize thorough coverage with *5% DDT sprays first for the less common species of bedbugs.* DDT should be the insecticide of choice because of its cheapness, safety, and long residual action.

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### Mites

The blood-sucking mites most frequently found annoying to man include the chicken mite *(Dermanyssus gallinae)*, the northern fowl mite *(Ornithonyssus sylviarum)*, the tropical rat mite *(Ornithonyssus bacoti)*, and the house mouse mite *(Allodermanyssus sanguineus)*. These four mites all have similar life cycles with eggs, six-legged larvae, followed by eight-legged protonymphs, deutonymphs, and adults. A complete generation is estimated to take about two to three weeks under optimum conditions, depending on the species, and may be much longer in cool portions of the year or where the opportunities for blood meals are limited.

The chicken mite and the northern fowl mite are two of the most common blood-sucking mites annoying to man throughout the United States. Both normally feed on domestic fowl or wild birds, hence infestations leading to complaints may originate either from chicken houses and farm buildings adjacent to dwellings or from nests of birds in attics or under eaves. Baker and co-workers (1956) reported that under optimum conditions both these mites may go through the stages from egg to adult in a week, but that two weeks or longer probably was more normal. They apparently can survive starvation for four to five months or more which may explain their presence in bird nests, such as those of the English sparrow, starling, or phoebe, in attics and under eaves, or their rapid build-up, when chicken houses are re-occupied. Very large populations, sometimes thousands of mites, may be found in a single infested chicken house.

PCOs should consider two lines of attack when complaints of infestations due to the chicken or northern fowl mite are reported. The first would include removal of the nests of birds such as English sparrows and starlings from louvres, attics, and eaves—the primary source of infestations

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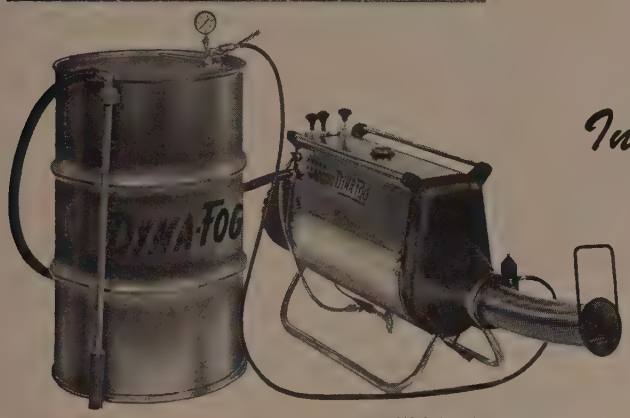


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in houses and office buildings. This should be followed by screening with half-inch hardware cloth, sheet metal work, or new carpentry to exclude the birds.

Control of the wandering mites should be carried out at the same time by insecticides. Immediate control may be achieved by pyrethrum sprays applied to the surfaces on which the mites are crawling to obtain rapid initial kill or knock-down followed by a thorough clean-up with a vacuum cleaner. Then all infested areas may be treated with residual applications of insecticides to obtain a prolonged kill. One to 5% DDT sprays have given variable results, 0.5% lindane and 2% chlordane are reported to give better control (although chlordane should not be applied to more than 10% of the floor area in occupied areas). DMC, Aramite, and chlorobenzilate have also been suggested for control. One to 4% malathion is reported to give excellent control and is probably the insecticide of choice.

The tropical rat mite and the house mouse mite are two other species which are often annoying to man. They differ from the chicken and northern fowl mites in having domestic rodents as their normal hosts. Both mites have life cycles that take approximately two to three weeks from egg to egg. Skaliy and Hayes (1949) have studied the life cycle of the tropical rat mite and have found that only the protonymph and adults suck blood. The Norway and roof rats are favorite hosts for the tropical rat mites throughout the warmer portions of the world. They may migrate into living quarters from rat nests, or they may leave a trapped or poisoned animal in their search for a new source of blood—which may be man. The bites of the tropical rat mite frequently cause irritation or dermatitis and lead to requests for control.

Control is ordinarily accomplished by two methods—rodent control and insecticides. Rodent control is the best insurance against annoyance by rat mites. Rats may be trapped or poisoned, particularly with the new slow-acting anticoagulants such as warfarin, pival, or fumarin. Rat stoppage may be installed in the form of masonry, sheet metal, or hardware cloth. Residual applications of insecticides may be applied, using the same chemicals as for the control of chicken or northern fowl mites, namely chlordane, lindane, DMC, Aramite, or chlorobenzilate. Residual applications of 1 to 4% malathion should give good control.

The distribution of the house mouse mite is not well-known, but

**House mouse mite**—collected by C. Pomerantz (Bell Exterminating Co., Inc., New York, N.Y.) and Dr. W. Jellison of the U .S. Public Health Service during the first outbreak of rickettsialpox in New York City, N. Y., in 1946.

in some localized areas as in metropolitan New York City, Hartford, Conn., and Boston, Mass., it has occurred by the thousands in apartment houses. The original outbreak of rickettsialpox in New York City was traced to infestations of house mouse mites from infected mice. The story of the research on this new disease entity has been the subject of a television program and articles in the "New Yorker" magazine, and most recently in an interesting book "Eleven Blue Men" with the intriguing title "The Alerting of Mr. Pomerantz", detailing the work of Pomerantz of the pest control industry, and Drs. Jellison and Huebner of the Public Health Service (Roueche, 1953). A rather similar situation was found in West Hartford, Conn., where Dr. Rindge, see Nichols, Rindge, and Russell (1953), of the Connecticut State Health Department found at least eight cases of rickettsialpox. Dr. Rindge told the writer that the mites were so abundant that apartment dwellers used a vacuum cleaner to suck up the blood-sucking mites, and that mice were so prevalent that one woman trapped 20 house mice with simple snap traps during a single weekend.

Control of rickettsialpox and its most important vector, the house mouse mite, is dependent on controlling house mice. Snap traps were used in New York City and West Hartford to kill mice already in apartments. Better methods for disposal of garbage which served as the food source for the mice were carried out. If outbreaks of rickettsialpox occur in the future, some of the new acaricides which have worked well on other mites undoubtedly will be tried. These include DMC, Aramite, chlorobenzilate, and malathion, with the last two probably the insecticides of choice.

### Fleas

When a complaint of a flea infestation is received, most PCOs think first of the cat or dog fleas because these are the most common species which are annoying to man. The cat and dog fleas are easily recognized by the presence of a row of blackish teeth on the underside of the head and on the posterior margin of the pronotum, known respectively as the genal and pronotal combs. If the fleas do not have these combs, a different species of flea is involved, and the PCO should consider other sources for the infestation and frequently different control measures.

The determination of the source of fleas in and around many of our better suburban homes, particularly if there are no pets involved, may require some careful detective work which can be aided greatly by accurate species identification of the flea involved. Although many of our common fleas will feed on a wide variety of hosts, they all have their preferred hosts, and an accurate identification of species will often speed the work of locating the true source of the infestation and suggesting the best control measures. Attics, for example, may become infested with the squirrel flea *(Orchopeas howardii)* which filter down from a squirrel nest through openings for light fixtures in the ceilings, around pipes or heating or air-conditioning

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**Pigeon fly**—a common ectoparasite of pigeons which occasionally bites man severely.

systems into the living quarters. PCOs may find the pictorial key in the article on flea identification by Pratt (1957) of value in the quick identification of common household fleas and a real aid toward better control practices. Chicken houses and adjacent buildings and grounds may become infested with a variety of fleas: in the Northeast the complaints may be due to the European hen flea *(Ceratophyllus gallinae)*; on the Pacific Coast, the western hen flea *(Ceratophyllus niger)* may be involved; while in the Southeast, the sticktight flea *(Echidnophaga gallinacea)* may be common. These may migrate into homes from chicken houses, outbuildings, or adjacent yards.

From the public health viewpoint, the oriental rat flea *(Xenopsylla cheopis)* and the northern rat flea *(Nosopsyllus fasciatus)* are of greatest importance. Both of these fleas are intimately associated with domestic rats, and both may transmit the organisms that cause plague and murine typhus from rats to man. The fleas may drop from domestic rodents as they roam about buildings; or the fleas may wander away from nests in buildings, foundations, or rubbish heaps.

Frequently PCOs are responsible for the presence of these two species in buildings. When rats are trapped or poisoned, the fleas leave the dead rodents or their nests and search out the nearest available warm-blooded animals as a source of their next blood meal. Often this is man. The most recent case of plague in the United States may have been contracted in this manner. A four-year-old girl had spent several weeks with her grandparents at a summer cottage near Raymond, Colo. some 50 miles north of Denver. Rodents were known to be in the cottage, probably Norway rats or wood rats. Anticoagulants and trapping had been used to control these larger rodents and the chipmunks which the little girl fed. It is possible that the little girl was bitten by an infected rodent flea from a dead animal or some small wild mammal which she was feeding. The child became sick in her home in Wichita Falls, Tex. and died, with a report of plague by the laboratories of the Texas State Health Department.

Control of fleas can be accomplished more easily and economically if the PCO knows the probable source of the offending insects. With these less common species of fleas, the treatment of all the rugs and floors with a residual insecticide which is a standard procedure for the cat and dog fleas may not control the infestation. For squirrel and rat fleas, for example, control measures should include the removal of the nest if possible, insecticidal treatment, and most important of all, rodent trapping and poisoning, or rodent proofing with sheet metal, hardware cloth, or masonry. With some of the chicken, wild rodent, and domestic rat fleas, area applications of insecticidal dusts or spraying with a suspension of a wettable powder may be required. It is, therefore, worthwhile for PCOs to know the exact species of flea which they are attempting to control.

For many years DDT has been

*(Continued on page 94)*

# *Things that rats hate about Asarco Thallium Sulfate.* SURE KILL!

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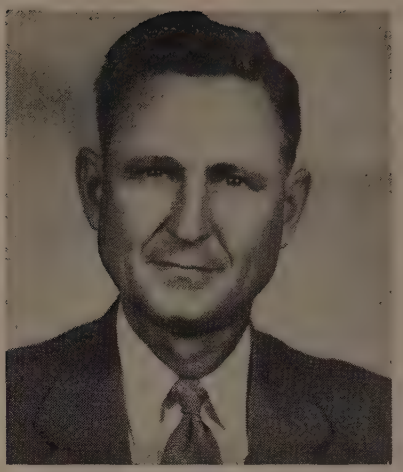
# NPCA Makes First 25 Years Convention Theme This Week



**J. C. Redd**
*President*

PROGRAM EMPHASIS for the National Pest Control Association's 25th Anniversary Convention is on the "Then and Now" of pest control; not a random over-the-shoulder look into the past but an interpretive appraisal of the industry's last 25 years in terms of today's problems and those that may lie ahead in the future.

Opening this week in the Presidential Ballroom of Washington, D.C.'s Hotel Statler-Hilton, the October 19-23 meeting also includes talks from top industry, government, and university representatives on business, warehouse pest control, rodent control, chemical research, and the Federal Housing Administration's revised Minimum Property Standards. Starting time for morning sessions is 9 o'clock; for afternoon meetings, 2 o'clock.

Herman L. Fellton of Getz Exterminators, Inc., St. Louis, Mo., national convention chairman, headed up program organization. He was assisted by a local committee co-chaired by William E. Roll, American Disinfectant Co., and Alva H. Bender, Bender Termite Control Co.

Convention registration in the Upper Lobby opens at 1 p.m. Sunday, October 19. Following a reception and tea for members and their wives in the Federal Room from 3:30-5:30 p.m., conferees dine, Dutch treat style, at Hogates Famous Fish Restaurant, nationally known seafood restaurant located on Washington's wharf at 9th and Main. Buses will be on hand to transport delegates.

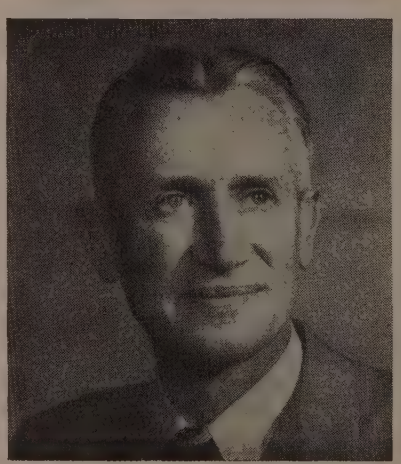
Call to order for the opening session Monday is to be given by National Chairman Fellton, followed by the invocation from Dr. Norman Gerstenfeld, Rabbi of the Washington Hebrew Congregation; Memorial Service by H. K. Steckel, Tornado Manufacturing Co., Columbus, O., and the official welcome to Washington, D.C. from Brigadier General A. C. Welling, District of Columbia Engineering Commissioner. This phase of the program will end with the annual President's Message to be given by J. C. Redd, Redd Pest Control, of Jackson, Miss.

Redd will take over the gavel at the business meeting, slated for 10:30 a.m. Annual reports are scheduled from Dr. Ralph E. Heal, NPCA executive secretary; Paul J. McMahon, NPCA secretary treasurer; and special and standing committees.

At noon, ladies will lunch at the Hotel Shoreham and the men in Statler's Federal Room. Wayne K. Davis, Ailing House Termite Inspection Bureau, Oakland. Calif., presides at the luncheon which features an address by B. Suttler of the Federal Bureau of Investigation, who will discuss the job of an FBI agent.

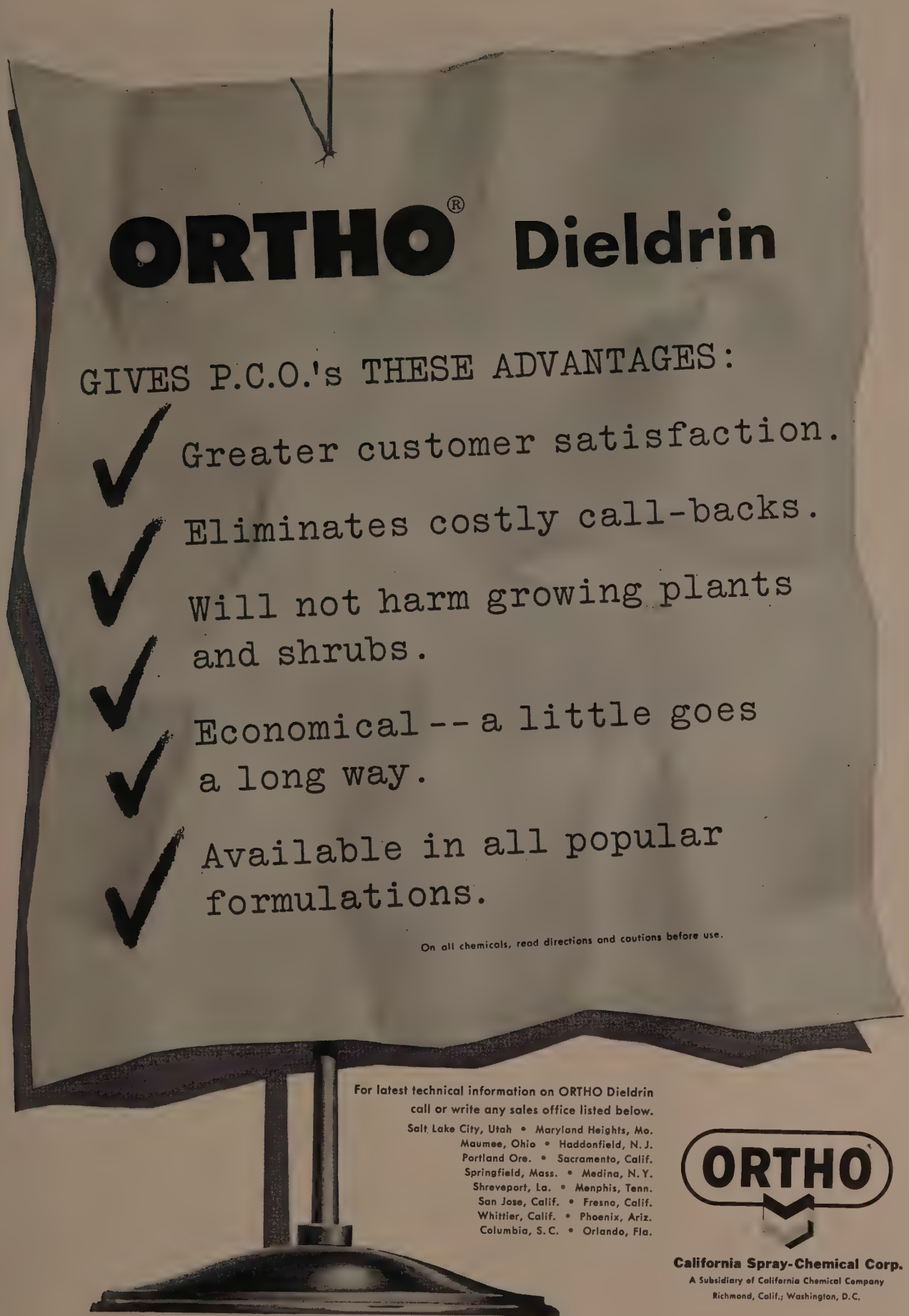
The "25 Years of Progress" keynote is being picked up at Monday's afternoon session. Presiding is Charles Cushing, Vogel-Ritt, Inc., Philadelphia, Pa. During this portion of the program, J. Edwin Sameth, Western Exterminating Co., Inc., Mountainside, N. J., covers developments during the industry's first 25 years; Robert C. Yeager, Rose Exterminator Co., Cincinnati, O. — what the next 25 years hold for the industry; and Stanley McKenzie, McKenzie Pest Control, Lake Charles, La. — observations of a newcomer to the industry. Rounding out the discussion is Dr. John V. Osmun, head of the Department of Entomology, Purdue University, with some predictions on what an "outsider" sees in the industry's future over the next 25 years.

Following this panel, another is to air the most pressing problems facing the industry today. Participants are Lee E. Chambers, Aldridge & Chambers, Inc., Virginia Beach, Va.; Charles C. Delk, Delk Pest Control, Fresno, Calif.; and David E. Anderson, Evans



**Wayne K. Davis**
*Executive Vice President*

**Paul J. McMahon**
*Secretary Treasurer*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## ★ 1957-58 NPCA Regional Vice Presidents

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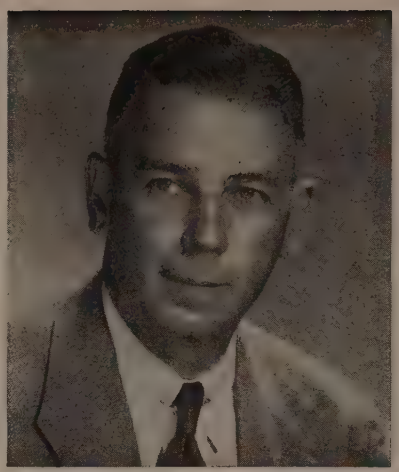

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*Boston, Massachusetts*

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*New York, New York*

**Alva H. Bender**
*Washington, D.C.*

**Luther M. Church**
*Norfolk, Virginia*

**Paul K. Adams**
*Alexandria, Louisiana*

**James J. McDaniel**
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**Joseph J. Mooney**
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An open forum at the end brings together all afternoon speakers for a general open discussion.

Monday evening is set aside for a Mixer and Dance in the hotel's Federal Room.

Herman Ratner, Ratner Pest Control, Atlantic City, N. J., presides at Tuesday morning's session. It opens with an address on how to plan a pest control business, by William Spitz, Big State Exterminating Co., Houston, Tex. Closely tied in with Spitz' business talk are others by James Steckel, Tornado Manufacturing Co., Columbus, on the "professional" approach to sales; by Abe Weinstein, Harris & Weinstein Associates, Inc., Atlanta, on industry advertising; and one by F. Peter Clements, Clements' Services, Ft. Lauderdale, Fla., on costs.

Louis H. Wilson, Director of Information for the National Plant Food Council, Washington, D.C., opens the next segment of the program, which is devoted to public relations. His talk will be followed by a discussion of public relations through service personnel. This is to be introduced by Dr. Heal, assisted by Alva H. Bender; William Graf, Vogel-Ritt, Inc., Philadelphia, Pa.; and John MacDonald, a member of the New Jersey Editorial Service, public relations consultants to the NPCA.

After lunch Tuesday, delegates are taking a scheduled bus tour through Washington, Arlington, Alexandria, and to Mount Vernon. The evening is open for private excursions.

For members of the NPCA's Member-Booster Club, Wednesday's activities begin with a 7:30 a.m. breakfast in the South American Room. Maurice Oser, Oser Exterminating Co., Denver, Colo., presides.

Dr. Philip J. Spear, NPCA technical director, chairs the 9 a.m. technical forum Wednesday. Committee reports are scheduled from William Turrie, Wil-Kil Pest Control, Milwaukee, Wisc., chairman of the NPCA Safety Committee; Dr. Harlan Shuyler, Conservation Industries, Inc., Kansas City, Kans., chairman of the Rodent Control Committee; and William I. Elo, Elo Exterminating Co., San Antonio, Tex., chairman of the Insecticide Committee. Dr. James McD. Grayson of Virginia Polytechnic Institute, Blacksburg, then brings members up-to-date on NPCA research at VPI. Reports on silica aerogels as insecticides will follow from a member of the Insecticide Committee; from laboratory researcher, Dr. Robert Yorton, of the Crop Protection Institute; and from Earl Seybert, Davison Chemical Co., Baltimore.

With members abreast of current technical developments, Dr. Clarence H. Hoffman, Entomol-

NATIONAL PEST CONTROL ASSOCIATION

# *If You Are Not A Member*

of the

# National Pest Control Association

## *Here's How to Apply for Membership*

Every pest control firm that wants to get the maximum benefits available only from the industry's trade association, the National Pest Control Association, should apply now for membership and join the 900 firms that now belong. A convenient application form is provided below. Have a nearby NPCA member sign as "sponsor," fill-in the information requested and mail, with at least one-half of one year's dues to:

**DR. RALPH E. HEAL**
**Executive Secretary**
**NATIONAL PEST CONTROL ASSOCIATION**
**250 West Jersey St., Elizabeth, New Jersey**

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## Membership Application

On behalf of_____
(Name of firm) (Street address, city, zone number and state)

I_____ hereby make application
(Authorized representative of firm) (Title)
for membership in the National Pest Control Association, Inc., and agree, if accepted to comply with the Constitution and Bylaws and to serve as representative of our company at meetings and in other activities of the Association.

Date_____ Signed_____

Application sponsored by _____
(Individual) (Firm Name) (City and State)

Application must be accompanied by a remittance for at least one-half of the dues for the current year. Dues schedule indicated below.

Applicant will be requested to complete an additional "Membership Information Form" for the Association records.

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Basic Office Fee, including Owner, Owner-Operator, or Branch Office Manager..... $ 50.00

Fee for Servicemen or Termite Crews — (Exclusive of Owner or Manager included in Basic Office Fee — All Men in all Locations, Branches, and Affiliate Firms must be Declared — Men for all Offices May be Grouped for Declaration).

_____x $12.50 for each of the first 25 Servicemen or Termite Crews.....$_____

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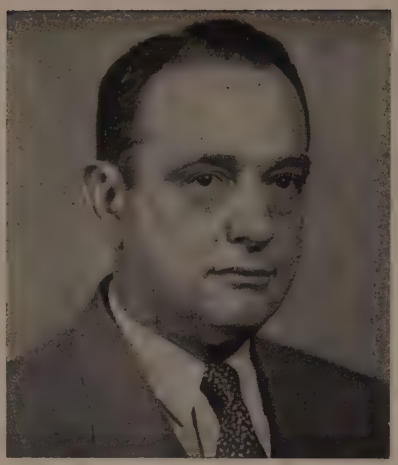
TOTAL DUES..... $_____

Amount Enclosed with this Application (One-half or all of the Total Dues Above)..... $_____

**Edwin N. Barck**
*Minneapolis, Minnesota*



**Maurice Oser**
*Denver, Colorado*

**William I. Elo**
*San Antonio, Texas*

## ★ 1957-58 NPCA Regional Vice Presidents

**Other pictures on page 64**

ogy Research Division, U. S. Department of Agriculture, will outline research for future pest control. Concluding speaker at the session is Hamilton Laudani, assistant head of the USDA's Stored-Products Insects Section, Beltsville, Md., with a review of new chemicals for warehouse pest control.

Wednesday afternoon is open for optional tours or personal sightseeing, but members reassemble at 8:30 p.m. in the Federal Room for motion pictures and slides, to be moderated by NPCA secretary-treasurer, Paul J. McMahon.

Thursday morning's program, chaired by Dr. Heal, opens with a discussion of new developments in rodent and wildlife pest control by Nobel Buell, Chief of the Branch of Predator and Rodent Control, U. S. Department of Interior, Washington, D. C. John D. Conner, long-time legal counsel for manufacturers of pesticides, then has current trends in pesticide regulations as his topic. Winding up the morning session are Fred New, Ragan Exterminators, Inc., Atchison, Kans., chairman of the Statistics Committee, with a report on committee activities; Kenneth Weiser, M. R. Weiser & Co., New York, N. Y., on profit control; and W. Beverley Mason, Jr., FHA's new assistant commissioner of technical standards, who is to cover FHA's revised Minimum Property Standards.

Following lunch, Fellton takes the lid off the "Question Box" for open discussion of a pot pourri of industry problems.

Drawings for exhibitors' prizes, after the "Question Box" feature of the program Thursday, will be by Mrs. J. C. Redd, assisted by John Medoff, Hudson Exterminating Co., New York, N. Y.

Wind-up of the 1958 Convention sessions is the annual business meeting, where 1958-59 officers will be elected and the report heard from the Convention Site Committee.

The gala Silver Anniversary Banquet and Dance is set for 7 p.m. Thursday in the hotel's majestic Presidential Ballroom, with Purdue's Dr. John V. Osmun serving as toastmaster.

Members of the new year's Board of Directors will remain behind over Friday for a meeting at 9:30 a.m. in the Pan American Room. Election of the Executive Board will highlight the business.

Special activities have also been planned for members' wives. Mrs. Lydia Bryne, local chairman of ladies activities, has planned a Monday luncheon, as well as the annual Lady Bug Brunch for 10 a.m. Wednesday in the Statler's South American Room. The girls can also shop, attend Washington style shows, and, of course, join in the Tuesday bus tour of Washington and the Thursday night Silver Anniversary Banquet.

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*Santa Cruz, California*

**Claude Snow**
*Portland, Oregon*

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*Montreal, P.Q., Canada*

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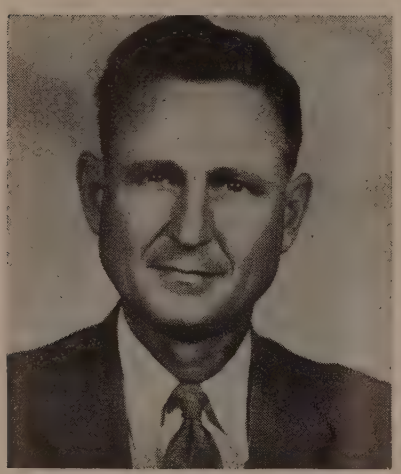
# Where Are We Heading?



*a guest editorial*
written especially for this issue
of PEST CONTROL by


## J. C. Redd

President
National Pest Control Association


ONLY A FEW PEOPLE have the privilege of serving as President of the National Pest Control Association, and this privilege accorded me during the year 1957-58 is sincerely appreciated. Serving as President of the National Pest Control Association is really a training period, since one seldom has an opportunity to learn the many facets of operation of the organization until he has served in the capacity of President. There are, however, a few things that have come to my attention in my travels over the country and in my association with members in different sections.

In the short space that has been alloted for this editorial, an effort will be made on my part to give you the benefit of some of these observations.

1. Our people have not awakened to the true potential of our industry.

2. We are slow to deviate from our regular routine of operations.

3. The lack of knowledge of cost, business management, and a true grasp of the business phases of our operations will break us much quicker than the lack of technical knowledge. When are we going to develop certain management standards in our operation, regardless of how small or how large the business may be?

4. We are not willing to launch out into the deep with the full faith and confidence that we can swim with the paddles of sound business management. If we launch out, "the ferry may be coming in rather than going out," and the distance we will have to swim to reach it may not be as far as we think.

5. The day has passed when the public will take business away from us. We will have to carry our story to the public. It is necessary that we prove our relationship with the public. Public relations and promotion will become a more integral part of a successful pest control operation in the future than it has in the past.

6. We also need in our industry a sound sales and advertising program by each individual operator.

These are some of the things that we must do. Our National Association has tried this year, through its committee set-up, to promote and concentrate on these phases.

It is customary to pay tribute to the Staff and the ones who have served so faithfully in carrying out this year's work. Our Staff is unexcelled. It is dedicated to the advancement of our industry. It has been a pleasure for me to work with the Staff and committees this year, and I have developed a greater appreciation for the problems that confront them.

Let us be contented, but not satisfied. Let us realize that the "ship is coming in and not going out," and that it is necessary for us to "launch out." It has been great to try to serve you this year!

# PROGRAM for the
## NPCA Silver Anniversary Convention

**SUNDAY, OCTOBER 19, 1958**

Upper Lobby

1:00 P.M. Registration

Federal Room

3:30-5:30 P.M. Reception and Tea

Hogates Famous Fish Restaurant

6:45 P.M. Dutch Treat Dinner

●

**MONDAY A.M., OCTOBER 20, 1958**

Upper Lobby

8:00 A.M. Registration

Presidential Ballroom

Herman L. Fellton, Presiding

9:00 A.M. Convention called to order — Herman L. Fellton

National Anthem — C. Walter Porter

Invocation — Dr. Norman Gerstenfeld

Memorial Service — H. K. Steckel

Welcome to District of Columbia — Brigadier General A. C. Welling

Annual Message of the President — J. C. Redd

10:30 A.M. Business Meeting — J. C. Redd, Presiding

Report of the Executive Secretary — Dr. Ralph E. Heal

Report of the Secretary Treasurer — Paul J. McMahon

Reports of Special and Standing Committees

Hotel Shoreham

12:00 Noon Ladies' Luncheon

Federal Room

12:15 P.M. Men's Luncheon

Wayne K. Davis, Presiding

B. Suttler

■

**MONDAY AFTERNOON**

Presidential Ballroom

Charles Cushing, Presiding

2:00 P.M. 25 Years of Progress

Then and Now: 1933-1958 — J. Edwin Sameth

What Does the Next 25 Years Hold for Our Industry? — Robert C. Yeager

A Newcomer Looks at the Industry — Stanley McKenzie

What an Outsider Sees for the Industry in the Next 25 Years — Dr. John V. Osmun

What Are the Most Pressing Problems Facing Our Industry? — Lee E. Chambers, Charles C. Delk, David E. Anderson

■

**MONDAY EVENING**

Federal Room

8:30 P.M. Mixer and Dance

**TUESDAY A.M., OCTOBER 21, 1958**

Presidential Ballroom

Herman Ratner, Presiding

9:00 A.M. Planning a Pest Control Business — William Spitz

The Professional Approach to Sales — James Steckel

A Review of Advertising of the Pest Control Industry — Abe Weinstein

Costs — F. Peter Clements

Public Relations Is People — Louis N. Wilson

Public Relations Through Our Service Personnel — Introduced by Dr. Ralph E. Heal, Assisted by A. H. Bender, William Graf, Joe MacDonald

●

**TUESDAY AFTERNOON**

1:00 P.M. Tour of Washington, Arlington, Alexandria and Mount Vernon.

●

**WEDNESDAY A.M., OCT. 22, 1958**

South American Room

Maurice Oser, Presiding

7:30 P.M. NPCA Member - Booster Club Breakfast

Presidential Ballroom

Dr. Philip J. Spear, Presiding

9:00 A.M. Technical Forum

Report of Safety Committee — William Turrie

Report of Rodent Control Committee — Dr. Harlan Shuyler

Report of Insecticide Committee — William I. Elo

NPCA Research at Virginia Polytechnic Institute — Dr. James M. Grayson

Silica Aerogels as Insecticides — Member of Insecticide Committee, Dr. Robert Yorton, Earl Seybert

Research for Future Pest Control — Dr. Clarence H. Hoffman

New Applications for Insecticides in Warehouse Pest Control — Hamilton Laudani

South American Room

Mrs. J. R. Byrne, Presiding

10:00 A.M. Lady Bug Brunch

**WEDNESDAY AFTERNOON**

1:00 P.M. Optional Tours or Personal Sightseeing

●

**WEDNESDAY EVENING**

Federal Room

Paul J. McMahon, Presiding

8:30 P.M. Motion Pictures and Slides

■

**THURSDAY A.M., OCT. 23, 1958**

Presidential Ballroom

Dr. Ralph E. Heal, Presiding

9:00 A.M. Progress Report on Animal Control — Nobel Buell

Industry Significance of Current Trends in Pesticide Regulation — John D. Conner

Report of Statistics Committee — Fred New

Profit Control — Kenneth Weiser

Minimum Property Standards of FHA for Protection Against Termites — W. Beverley Mason, Jr.

■

**THURSDAY AFTERNOON**

Presidential Ballroom

Herman L. Fellton, Presiding

2:00 P.M. "Let's Open the Question Box"

Drawings for Exhibitors' Prizes — Mrs. J. C. Redd, Assisted by John Medoff

Business Meeting — J. C. Redd, Presiding

Report of Convention Site Committee

Election of Officers

●

**THURSDAY EVENING**

Presidential Ballroom

Dr. John V. Osmun, Toastmaster

7:00 P.M. Silver Anniversary Banquet and Dance

●

**FRIDAY A.M., OCTOBER 24, 1958**

Pan American Room

9:30 A.M. Board of Directors Meeting

10:00 A.M. Election of Executive Board

# The Restrictive Covenant: How Enforceable Is It?

Written Especially for Pest Control by
PHILIP YEAGER
Washington, D.C. Legal Writer

In today's closely knit and highly competitive society, an increasing number of businessmen are resorting to contract practices which put restraints on their employees.

Pest control operators are no exception — particularly where the object is to stop servicemen with knowledge of their employer's service and pricing policies from going into business in competition with that employer.

Here are a few pertinent sections drawn from different PCO employment contracts now in use:

(1) "The (employee) agrees that he will not, during the term of this agreement and for five years thereafter . . . communicate, divulge or use for the benefit of any other person, partnership or corporation any of the trade secrets or secret processes of manufacture or methods of extermination or termite control policies, prices, etc., used by (the employer) which may be communicated to (the employee) by virtue of his employment hereunder."

(2) "The employee agrees that for a period of one year after the termination, for any cause whatsoever, of this employment contract, he will not, directly or indirectly, either on his own account or associated with others, engage in the same or similar business to that of the employer within the territory in which employee has at any time worked for the employer or within that area which falls within 100 miles thereof."

(3) "Employee shall not, during the period of his employment, or within the period of two years after termination thereof, train or teach any person in the use of pest control materials, techniques and methods without the written consent of the employer."

(4) "The employee agrees . . . that for five years (after his employment ends) he will not engage in such business on his own account or become interested therein directly or indirectly as an individual, partnership, stock-holder, director, clerk, officer, principal, agent, employee, trustee or in any relation or capacity whatsoever."

In the legal profession such clauses are known as "restrictive covenants", and the immediate question they raise is:

Are such agreements good? Can they be legally enforced?

The general answer is: Yes. Covenants of this type, in their overall concept, are valid and enforceable in virtually all State courts and in the Federal courts as well.[1]

However — and there are some pretty big "howevers" involved in this matter — it should be kept in mind that any restrictive covenant is **prima facie** a restraint of trade and that the courts therefore are universally prone to examine them with great care and even suspicion.

Put more concretely, contract clauses such as the foregoing must be REASONABLE in the light of all circumstances or they will be held void. Moreover, the courts will enforce them only to the extent necessary to protect the employer's demonstrable interests — and no further.

So far as the samples listed above are concerned, an educated guess about their validity might go as follows: the first certainly seems valid and could be enforced even if no written agreement concerning the matter had been entered into; the second in all probability would be upheld; the validity of the third is doubtful: the fourth would probably be given the "heave-ho" from 90% of the courts in the country.

Let's take a quick look at the three basic elements of the restrictive covenant and what — in very general terms — the law says about them.

### Trade Secrets

Because of the special relationship between employer and employee, the law imposes a positive duty on the employee not to disclose any secret process, trade secret, or confidential information he gains through his employment —whether or not there is an express agreement to this effect. If no such written contract exists, the law will imply the duty, and this duty will continue after employment as well as during it.[2]

At the same time, an employee is entitled to make use in subsequent jobs of such general professional skill, experience, and knowledge as he may have gained. Any contractural agreement to the contrary will be enforced only to the extent necessary to protect the employer's real interests.

And note! If the employer complains of the pilfering of trade secrets he must be prepared in any case to show (1) that he, exclusively, is entitled to the data, methods or formulas involved and (2) that they are his **particular** secrets and not those generally known to the trade.

The term "secrets", though, is not limited to patentable techniques or inventions, but may apply to any operation, manufacturing process, advertising program, business code, office records, etc. Their nature is less important, legally, than their value to the employer.

An important, landmark case in this field was decided in Massachusetts in 1946.[3] It involved an employee of a shoe-making concern who, after 18 months with the firm, figured out how to duplicate a machine combine process, a process developed by the employer. The employee quit his job and two months later went into business for himself using the same process. The Massachu-

1. See Safeway Stores v. Wilcox. 220 $F_2$ 661, for recent discussion of federal views.
2. See 165 American Law Reports 1454 for general discussion of trade secrets.
3. Junker v. Plummer, 320 Mass. 76; 67 $NE_2$ 667.

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setts supreme court not only stopped him from using the process but awarded the employer $2,000 damages.

Virtually all jurisdictions will issue injunctions against the former employee in cases where a reasonable restrictive covenant has been violated, but only a few have thus far shown a disposition to award the employer damages to boot.

Federal courts are among the latter. The 1956 decision of the Fifth Circuit Court of Appeals, which slapped the wrist of Colgate-Palmolive when it lured an employee away from another company to help make a competing, pressurized, shaving lather, suggests the strong views which United States courts hold against those who infringe trade secrets —contract or no.[4]

**Competition**

Unless there is an agreement to the contrary an employee may, any time after his employment ends, go into competition with his employer. He is no different from any other competitor.

But if there is an agreed covenant limiting the former employee in this way, the agreement will normally be enforced providing (1) it is necessary to the business and/or good will of the employer and (2) the restraint on the employee is not unreasonable.

Deciding what is reasonable and what is not, of course, is a rather nebulous process and varies a great deal according to circumstances. As a rule, the courts consider at least these three elements: the nature of the employment (whether it was confidential, privileged, etc.), the time limits imposed on the employee, and the off-limits territory stipulated in the agreement.[5]

One of the best examples of how far the courts may go in enforcing a non-competition covenant cropped up in a 1956 New Jersey case where an insulating engineer had agreed not to compete in the acoustics field for one year after his employment ended in either New Jersey or New York State. The court decided that such an agreement was not necessarily void because it encompassed entire States, but that all circumstances should determine.[6]

There have been similar rulings as to the length of time involved in restraining employee competition.

Conversely, if the employer seeks to enjoin a former employee on the basis of a covenant, it is up to him to show that he is likely to suffer irreparable injury from competition.[7] Moreover, regardless of how the contract may read, if the employee has been wrongfully dismissed from his job there is a very good chance that he will not legally be held to any promise not to compete.

**Soliciting A Former Employer's Customers**

Obviously, this facet of the problem is allied to competition generally, and the rules are pretty much the same.

So long as there is no agreement to the contrary, there is little to prevent an employee from soliciting his former employer's customers — **unless** the employee secured the list of customers while employed in a special capacity so that he was one

*(Continued on page 98)*

4. Colgate Palmolive Co. v. Carter Products, 230 $F_2$ 855.
5. Re time limits see 41 American Law Reports$_2$ 15; re territorial limits, see 43 American Law Reports$_2$ 94.
6. Wood v. Kane, 42 N.J. Super. 122; 125 $A_2$ 872.
7. Arthur Murray Studios v. Witter, 62 Ohio L. Abs. 17; 105 $NE_2$ 685.


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# Relationship of Construction To Sub-Termite Infestations

by ROBERT M. RUSSELL

Technical Director, Orkin Exterminating Co., Atlanta, Ga.

The relationship of construction to infestation may be considered the heart of corrective and preventive termite control. To consider the importance of this relationship, let's envision an animal, vegetable, and mineral relationship. Our animal is, of course, the subterranean termite, and the mineral is the cellulose in the wood on which it feeds. We shall also assume that because subterranean termites require high moisture, the addition of water to wood in a structure enhances its attractiveness to the insect.

In nature, termites are symbiotic to forests. Here, termites sustain themselves upon fallen trees, logs, and stumps, and such activity in turn clears the forests of debris so trees can perpetuate themselves. As man began to use wood in his structures, termites readily adapted themselves to feed upon it.

First let us consider the location of a structure. The Building Research Advisory Board Report defined one region of heavy termite infestations which comprised about one-third of Texas, Louisiana, Mississippi, Alabama, Georgia, Florida, South Carolina, and California. A region with an annual rainfall of 55% or greater closely corresponds to areas which BRAB defines as heavy infestation areas. We further know that the average humidity east of the Mississippi River is 70%. West of the Mississippi, humidity ranges from 65% in Southern Louisiana to 20% in Nevada and to about 80% in the Pacific Northwest. The East was originally covered by a heavy stand of timber defined as the eastern deciduous forest. As we move through the Middle West, from the prairie states to the plain states, into the Rocky Mountain region and the arid Southwest, we do not again encounter such stands of timber except in the Pacific Northwest. Where forests were once heavy, we can probably expect to find large reservoirs of termite colonies. We can also expect more termite activity in places having higher year around moisture.

In addition to location of the structure, we must consider certain characteristics of the site itself. This includes how surface drainage is handled and the state of sub-surface water. Character of the soil at the site will have some bearing upon moisture effect of the ground water table.

Capillarity is the ability of water to move up through a medium having a certain attraction. Soils which encourage capillarity are listed in the table below:

| MEDIA | RISE IN FEET |
|---|---|
| Clay | 11.5 |
| Silt | 11.5 |
| Fine Sand | 7.5 |
| Coarse Sand | 2.6 |
| Gravel | 0 |

We thus understand that a gravel base under a structure not only provides a uniform structural base but also assists in breaking capillarity.

As we consider the relationship between construction and infestation, we must also review the building materials which are affected. Masonry is the "mineral" in our animal, vegetable, and mineral relationship mentioned at the beginning. Masonry is a passageway over which the animal or termite may pass to secure the vegetable, or wood, as food. Masonry can serve as a passageway both through design and through defect. Concrete blocks have a designed passageway and brick, when used as a veneer, also provides such a passageway. Shrinkage of concrete blocks is an example of a defect that could permit termite entry or allow water to collect and create a termite-attractive condition. Most concrete block shrinkage is caused when the blocks are not properly cured to a correct moisture percentage. In general, blocks should contain about 30% moisture where they are to be used in an exterior foundation wall, and about 25% moisture when they are to be used in interior walls.

Wood is, of course, the most

**Board ends and other scrap lumber** contractors may leave scattered near the foundation of a new home create ideal termite conditions. A key danger spot, Russell warns, is the foundation trench.

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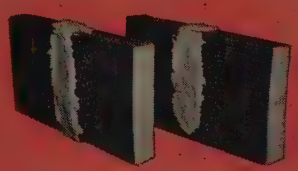
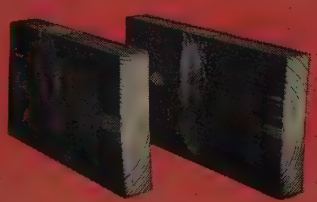
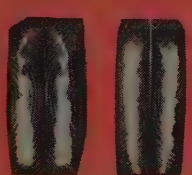


Southern Yellow Pine penetration test shows WOODTREAT-TC on first day of application.



Four days later. Note diffusion of Penta and oil from point of application to end of plank. Dried crust is almost ready to flake off or be brushed off.



Cross section of above boards at point of application. Penta has made almost complete penetration in 4 days!

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| TYPE WOOD | COST PER THOUSAND BOARD FT. | FRAMING COSTS |
|---|---|---|
| Redwood | $300.00 | $1,980.00 |
| Pressure Treated | $140.00 | $ 924.00 |
| Yellow Pine | $ 90.00 | $ 594.00 |

commonly used building material in residential construction. It is (1) readily available in most areas of the country, (2) reasonable in cost, (3) easily shaped, (4) speedily placed in the structures, and (5) has ornamental purpose. The two woods most commonly used in framing, yellow pine and Douglas fir, are highly attractive to termites.

Heartwood of redwood, Southern Tidewater red cypress, and long leaf pine with a high pitch content are resistant to termite attack. In addition, wood treated under pressure with preservatives can also achieve a resistance to termite attack. However, the use of such materials involves considerable extra cost.

To consider the extra framing cost in using a naturally resistant and a pressure-treated wood, take as an example a three-bedroom house of about 1,200 square feet of which about 6,600 board feet is framing lumber for sills, joists, plates and studs. Comparative costs are as shown in the table above.

We can see that the dollar difference between naturally resistant redwood and regular yellow pine framing is approximately $1,386. When a pressure-treated wood framing is used, this differential is reduced to $330.00. But, we must remember termites will readily tube over resistant or treated wood to attack other woods.

#### External Factors

External factors that affect the relationship of construction to infestation need to be considered, too. Natural tree stumps can be a hazard when left adjacent to the structure. This hazard will be magnified many times if the stump is left under a structure. Wood used in construction also can contribute to the extent of termite infestation. The foundation trench is left open during the entire time wood in the house is being placed and thus collects board ends and other debris containing cellulose which attract termite colonies. This is especially true where such waste lumber is placed in dirt fills readily adjacent to the sill line of the house.

Gutters and sub-soil drains can also create conditions attractive to termite colonies. Improperly installed gutters and those in bad repair fail to carry rain water runoff away from the foundation. Thus, such conditions can cause damp basements and, in some cases, decay.

Weather is another external influence. In the northern half of the country most wood decay is due to condensation. In the southern half of the country most wood decay is the result of rainwater leakage. These two areas are separated by the 35° average January isothermal line running north of California, Arizona, Oklahoma, Kentucky, and Virginia.

#### Internal Structural Factors

There are also internal factors which may be component parts of our structure and which may have bearing upon the relationship of infestation to construction. Conventional construction is one common example. In this type there is a crawl space area under structural members. The Federal Housing Administration stipulates this space should have a clearance of at least 18″ from the bottom of the joist to grade. In the BRAB Report there is a recommendation that all wood in contact with masonry, and within 24″ of grade, should be resistant pressure-treated. Where there is a slope present, more difficulty may be expected with the correct grade and clearance in a crawl space structure. Ventilation is closely tied in with clearance specifications for crawl space area. FHA recommends two square feet per 25 lineal feet with ventilators 5′ from each corner or so that no dead air pockets remain. Ventilators are necessary to carry away excess moisture that can accumulate under a house. With a high water table and certain type soil this moisture accumulation can be very extensive. Soils containing up to 50% fines will regularly transmit moisture. A fine is a particle of silt or clay about 1/480″ in diameter. In these special soils, 19 gallons of water in a 1,000 square foot area will evaporate in 24 hours. This is an excessive example, but an average would be closer to 12 gallons of water. Under such evaporation and with improper ventilation, moisture in the wood can reach as much as 50%, highly conducive to fungus growth and making it increasingly susceptible to termite attack.

Those of us in termite control can accept the mechanical protection theory based upon the proper installation of termite shields. However, from our experiences, those instances in which shields have served as an effective barrier are so few, yet, we have many times seen poorly installed shields or shields that were failing to protect the home. All too often we feel they give the homeowner a false sense of security. Unfortunately, shields are still included as one of the recommended barriers in FHA's Minimum Property Standards.

Temporary forms left in place can also accelerate termite attack. These may have been built during construction or put under a structure many years later when the soil beneath the house began to compact, causing settlement of the floors. All too often wooden posts are used to brace construction members or to support sagging sills and joists. These, too, are vulnerable to termite attack. Form boards left

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under supported slabs are another example. They are readily attacked and, particularly, when the area in which they are used is closed off from human observation.

Within the past few years we have begun to encounter another difficulty in treatment of contemporary structures. Decorative effects, such as planters, often make it impossible, difficult, or costly for us to treat a certain area of the structure. Special application methods and chemicals non-harmful to vegetation must be considered where such planter boxes or related decorative fixtures are used. The highest hazard area in a conventional structure is, of course, dirt filled areas. In such an area, and due to carelessness of the contractor in leaving wood debris, we have found infested soil within 1″ or 2″ of the wooden sill line of the house. Thus, infestation develops in the dirt fill and can easily spread to the structural members of the house.


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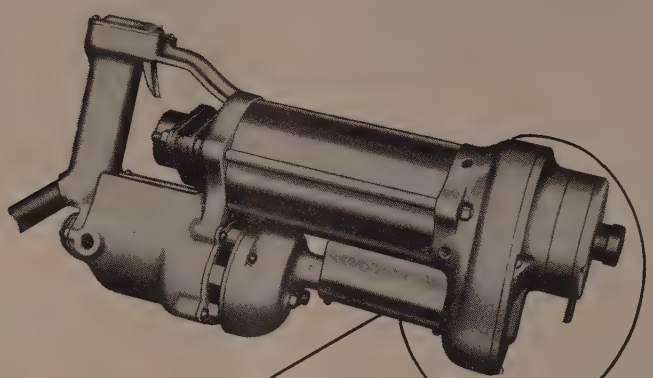

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A slab construction also has internal factors that need to be considered. There are three types of slabs in general use: (1) floating, (2) supported, and (3) monolithic.

FHA stipulates the floating slab is most satisfactory since it can move with the rise or fall of the fill area and in the long run causes less harmful effect to the structure. Although housing starts last year fell to below 1,000,000, probably some 600,000 floating slabs were constructed. During the past 10 years approximately 5,000,000 of these units have been built throughout the country and, therefore, become a consideration in termite control.

All slabs should have a vapor barrier. This prevents water in the mix from leaking into the soil during curing and prohibits ground water from moving by capillarity action into the concrete mixture during curing. There are three major requirements of a vapor barrier: it should be (1) resistant to the transmission of mortar, (2) resistant to damage by moisture, and (3) be able to absorb a certain amount of rough treatment during construction. Fifty-five pounds of rolled roofing per 100 square feet or a 4-mill polyethylene sheet are the two most common types of vapor barriers in use. Although they may give some further protection from termites, they are not a mechanical barrier. Ground stakes and other punctures are common and even a 1/32″ crack in a concrete slab will cause an offset and a break in a vapor barrier.

A floating slab must of necessity have an expansion joint at the junction with the exterior wall. This expansion joint can often be a means of termite entry. One government agency even goes so far as to recommend a Celotex material as a medium for this expansion joint. This, of course, is food material for termites and, as such, creates another building hazard.

Service lines are another means through which termites can get into slab structures. Plumbing lines not only permit entry but are often immediately adjacent to wood; and because of the nature of the materials used, condensation frequently occurs. Thus, plumbing can create attractive conditions conducive to termite infestation.

FHA stipulates that all heat

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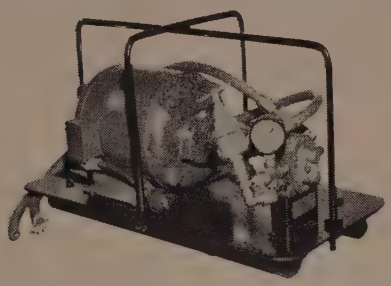

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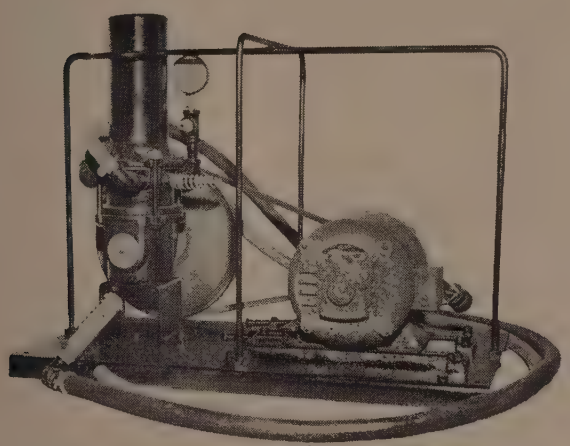

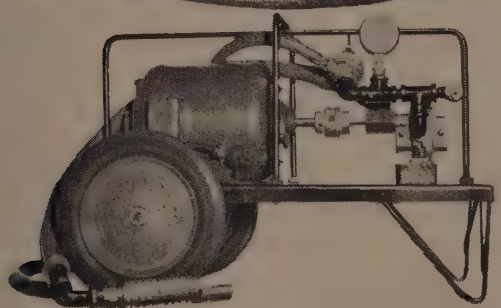

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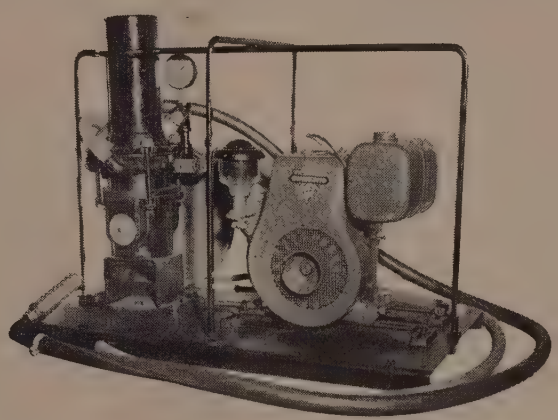

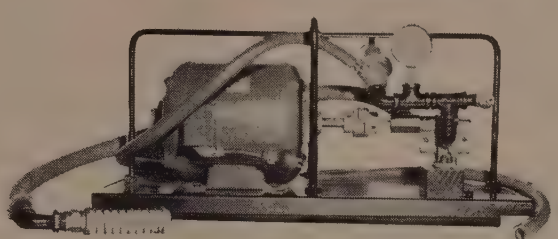

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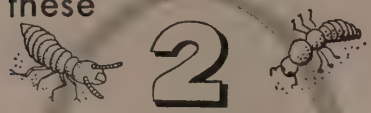

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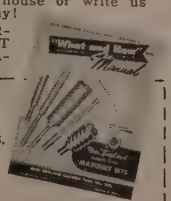

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ducts in slabs be encased in concrete unless transit pipe or glazed tile with sealed joints is used. Many heat ducts are made of cellulose type products and, unfortunately, sometimes the contractor covers only the top side with concrete. This permits and encourages entry by termites.

Cracks in concrete slabs can also permit entry of termites. Such cracks may occur if the proper strength concrete is not used or if this concrete is not properly agitated during placement. In addition, there is a common fault of re-adding water to increase the workability of the concrete mix where a time delay has occurred. This addition of water beyond the normal ratio of 15% greatly weakens the strength of the concrete. Though extra water is not needed in placing concrete, it can be well used to increase the strength of concrete through proper application during curing.

Wood is sometimes placed in a concrete slab through design. Such placements usually enhance the possibility of cracking. In addition wood is left in concrete through an o v e r s i g h t during building.

We must also consider the condensation relationship between wood placed on a concrete slab. Condensation always occurs during warm and humid weather. This condensation occurs where the face of the wood comes in contact with the face of the concrete. Because of moisture conditions at plate areas, selective use of resistant or pressure-treated woods might be a worthy contribution at these points.

Wall voids can contribute to infestations in both conventional and in slab construction.

There are three component parts of termite control.

1. Theory of treating.
2. Elements of construction.
3. Mechanics of application.

In our relationship of construction to infestation we can see that this phase may encompass some 65% of termite control. Due to building conditions and changes, we need to keep our knowledge current in this field. We, therefore, must study and observe so our knowledge of the relationship of construction to infestation will help us to improve our termite control programs.

---

Based on a talk presented at the 1958 Purdue PCO Conference.

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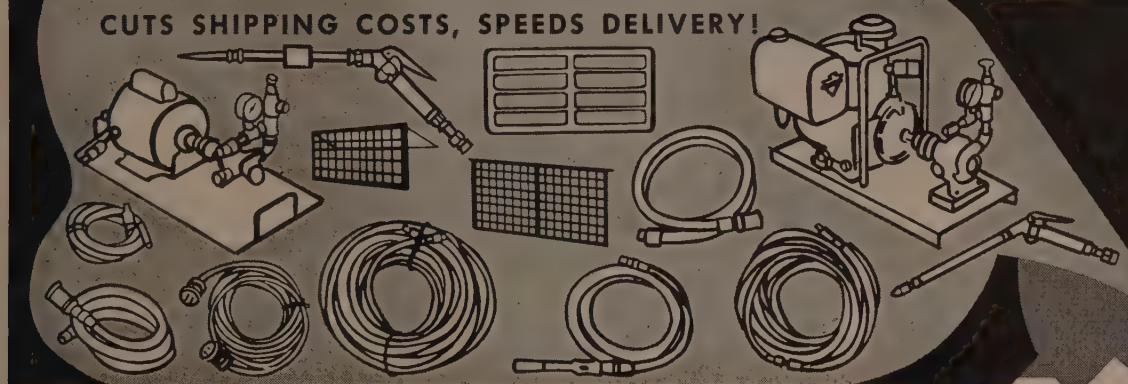

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# What's NEWS In The Industry

## 28 PCO Firms Join to Form Co-Pe-San; Offer Nation-Wide Pest Control, Sanitation Service

A group of 28 well-established pest control firms have formed a corporation to offer pest control and sanitation services in every state of the Union. Called Co-Pe-San Services, Inc., its general offices are in the Board of Trade Building, 141 W. Jackson Blvd., Chicago, Ill. Nelson C. Brewer, Jr. is general manager and director of sales.

Stockholders of the new company are owners of the 28 PCO firms whose headquarters will serve as regional offices for Co-Pe-San in Massachusetts, New York, Texas, Florida, Nebraska, California, Indiana, Arkansas, Michigan, Minnesota, Colorado, Mississippi, New Jersey, Oklahoma, Tennessee, Ohio, Kentucky, Wisconsin, and North Carolina.

Officers of the corporation, all men with many years of industry experience, are: president H. K. Steckel, Columbus, O.; vice-president J. Edwin Sameth, Newark, N. J.; treasurer B. W. Eldredge, Waltham, Mass.; and secretary I. B. Carneross, Syracuse, N.Y.

Nelson Brewer, Co-Pe-San's 42-year old manager, brings with him over 8 years experience in direct mail preparation. He has been a general sales manager of a large firm and was a manufacturers' representative in the Merchandising Mart. Besides managing the operations of Co-Pe-San's Chicago headquarters, Brewer will solicit and call on national accounts for the new company.

"Co-Pe-San has been formed to meet the trend in our national economy toward centralized buying by large companies which have outlets in many sections of the country." President Steckel told PC. Standards will be established through a technical committee to assure accounts service will be uniform throughout its system.

A unique feature of Co-Pe-San is that it offers, in addition to periodic preventive pest control, a wide variety of other specialized services such as sanitation programs and laboratory analysis for food processing plants, mill and grain storage fumigation, tobacco warehouse fumigations, large area weed and brush control, area mosquito control, ground line treatment for utility poles, fumigation for drywood termites and other services.

It is reported the company has completely equipped laboratories staffed by skilled technicians prepared to analyze and report on any problems customers may have. The amalgamation of personnel from the 28 firms gives Co-Pe-San a staff of qualified specialists including entomologists, bacteriologists, sanitarians, chemists, veterinarians, agronomists, and biologists.

Co-Pe-San will eventually engage in a nation-wide advertising and sales promotion program, and additional associate pest control firms are to be added to the cooperative group as the breadth of its activity increases, according to corporate officers.

## 84 at Ind. PCA Barbecue

About 84 members of the Indiana Pest Control Association, their wives, and children were on hand at The Hills, west of Purdue University in Lafayette, August 23, for the association's annual chicken barbecue.

Speakers included Glen Lehker, extension entomologist, Purdue University, who led a group discussion on "What We Learned This Year" and "New Fields for the PCO"; Galen Oderkirk, district agent, U. S. Fish & Wildlife Service, West Lafayette, "Latest Control Weapons for Rodents, Birds, and Other Animal Pests"; Professor Emeritus J. J. Davis of Purdue, association secretary, who reviewed several association matters; and Lee C. Truman of Pest Control Services, Inc., Indianapolis. Speaking as a member of a National Pest Control Association committee studying affiliation between the NPCA and state associations, Truman commented on problems in affiliation and asked for ideas and suggestions.

## Dykstra Addresses Pa. PCA

Highlight of the Pennsylvania Pest Control Association's Inaugural Conference September 12 in Bedford was a talk covering the effect of pesticides on wildlife, given by Walter W. Dykstra, staff research assistant, Branch of Wildlife Research, Washington, D.C.

Describing his agency's studies on improper use of pesticides in wildlife refuges and similar areas, Dykstra said misapplications have caused as much as an 85% loss in local quail populations.

"In most cases where loss of fish or small game was discovered, loss was caused by an excess of pesticides through error of an applicator, and the loss was not widespread," Dykstra said.

He added, moreover, that the "balance of nature" is never in balance; instead, fluctuates from too few to too many of the various species.

The conference drew over 60 association members, according to secretary Harry Katz, Elco Manufacturing Co., Pittsburgh.

**Inaugural Banquet of the Pennsylvania Pest Control Association,** held in Bedford, Pa.'s Bedford Inn, climaxed the first major conference of the association's eastern and western divisions.

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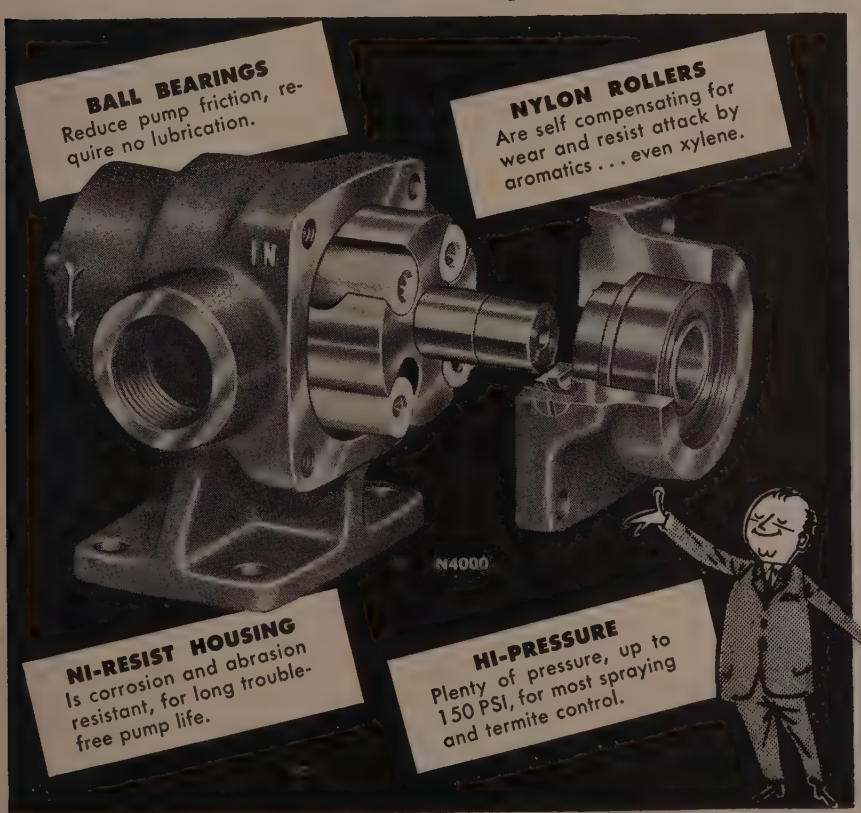
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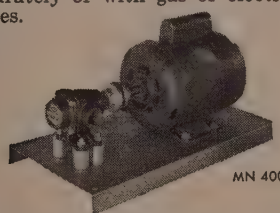


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## Offer Chemical, Cost Chart

A new pesticide and cost calculator developed by Pest-Cal Co. of Lemon Grove, Calif. reportedly gives quick and accurate calculations for dosages of over 70 pesticides used in household and agricultural pest control, and in weed control.

On one side of the calculator's circular chart, insecticide formulations are divided into emulsifiable concentrates, wettable powders, and solutions. When the calculator is rotated to the desired insecticide, rodenticide, or herbicide, the dosage rate appears in a small window. On the reverse side a cost calculator figures finished spray costs.

Other features include: BRAB chemical soil barrier recommendations, several tables of equivalents, and percentages of finished sprays most commonly used for household pest control.

For further information, write Pest-Cal Co., Box 551, Lemon Grove, Calif.


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# Calendar

**National Pest Control Assn. 25th Annual Convention and Trade Show,** Statler-Hilton Hotel, Washington, D.C., Oct. 19-23.

**Conference on Stored Grain Insects and Their Control,** Kansas State College, Manhattan, Oct. 21-24.

**American Public Health Assn. 86th Annual Meeting,** Kiel Auditorium, St. Louis, Mo., Oct. 27-31.

**Eighth Annual Meeting of the Entomological Society of Canada and 95th Annual Meeting of the Entomological Society of Ontario,** Guelph, Ontario, Oct. 29-31.

**Third Annual Sanitation Maintenance Show & Conference,** Trade Show Building, New York City, New York, Nov. 3-6.

**CDC Mosquito Control Training Course No. 231,** Atlanta, Ga., Nov. 3-7.

**VPI Pest Control Operators' Short Course,** Virginia Polytechnic Institute, Blacksburg, Nov. 5-7.

**Canadian Chemical Specialties Manufacturers Assn. First Annual Meeting,** Queen Elizabeth Hotel, Montreal, P.Q., Nov. 13-14.

**Kentucky Pest Control Assn. Meeting,** Brown Hotel, Louisville, Nov. 17.

**Eastern Branch of the Entomological Society of America Meeting,** Lord Baltimore Hotel, Baltimore, Md., Nov. 24-25.

**Ohio Pest Control Assn. Meeting,** Mayflower Sheraton Hotel, Akron, Nov. 30, Dec. 1.

**Entomological Society of America Sixth Annual Meeting,** Hotel Utah, Salt Lake City, U., Dec. 1-4.

**Texas Pest Control Assn. 14th Annual Convention,** Rice Hotel, Houston, Dec. 4-6.

**Chemical Specialties Manufacturers Assn. 45th Annual Meeting,** Commodore Hotel, New York City, Dec. 9-11.

**CDC Identification and Biology of Arthropods Course No. 241,** Atlanta, Ga., Jan. 12-23, 1959.

**22nd Annual Purdue PCO Conference,** Purdue University, Lafayette, Ind., Jan. 26-30.

**Pest Control Operators of California, Inc. State Convention,** Hotel Claremont, Berkeley, Feb. 12-14.

**American Mosquito Control Assn.'s Annual Meeting,** Salt Lake City, U., April 12-15.

## AS-575 Stops Resistant Tick

Brown dog tick resistance has been a growing problem for southern PCOs, but many operators in that section of the country are reportedly controlling this species effectively with AS-575, a new emulsifiable concentrate pesticide developed by Agricultural Specialties. For more details on this new chemical for resistant brown dog ticks, write Agricultural Specialties, 10219 Denton Dr., Dallas, Tex.

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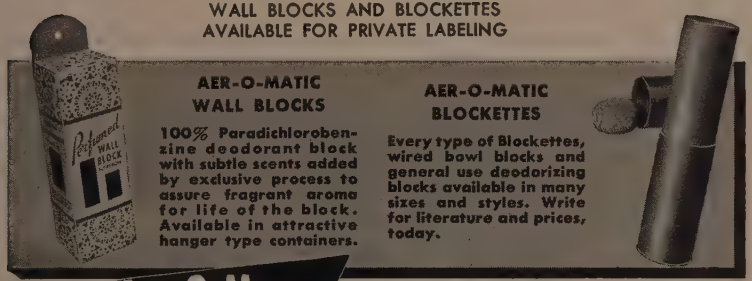

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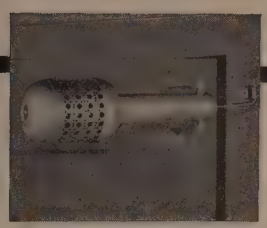

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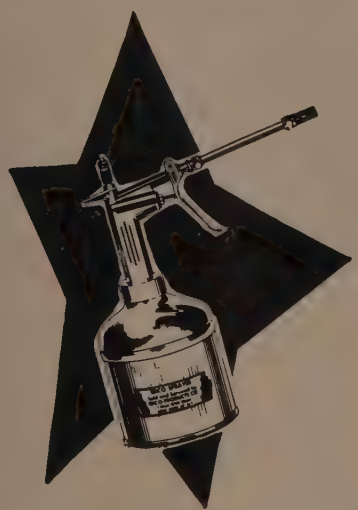

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# Infestation Report

Contains pertinent portions of the Department of Agriculture's **Cooperative Economic Insect Report**, material from university entomology departments and reports from readers. PCOs noticing infestations in their own areas are urged to communicate with **Pest Control** so their information may be added to this infestation report.

### BLACK CARPET BEETLE
(Attagenus piceus)

**North Dakota:** Home infestations reported from many areas of state.

### BLOODSUCKING CONENOSE
(Triatoma sanguisuga)

**Florida:** Reported to be quite numerous in a home and causing irritation by their bites at Monroe, Seminole County.

### BROWN-BANDED ROACH
(Supella supellectilium)

**Maryland:** In a Baltimore home. **North Dakota:** Infestation reported in a Fargo home. **Virginia:** Heavy in a number of homes in Richmond.

### A FAN PALM MOTH
(Litoprosopus coachella)

**California:** Heavy infestation in paper and wool in Bakersfield, Kern County.

### FIELD CRICKET
(Acheta assimilis)

**Maryland:** Numerous around homes in Glenridge section of Hyattsville.

**Texas:** Very heavy around lights and entering homes in Dimmit County.

### FLEAS

**Maryland:** Cat and dog fleas in several parts of state. **Rhode Island:** C. felis and C. canis abundant and troublesome in East Providence, Smithfield, and Cranston.

### FLIES

**Missouri:** Kansas City municipal control program scheduled for zoo, Municipal Stadium, city dumps, and areas affected by Blue River flood. Quantities of chemical also to be distributed to restaurants. **New York:** House flies continue at high population levels. **Utah:** House flies generally numerous in Piute County. **Wisconsin:** Heavy fly populations reported from Chippewa, Pepin, Wood, Dane, Waukesha, and Jackson Counties.

### RATS

**Utah:** Infestation serious in Salt Lake City, near 24th East and 20th South, and along waste canal in northwest section of city. Municipal control program underway. Elsewhere in city, annual municipal inspection program proceeding.

### SAY STINK BUG
(Chlorochroa sayi)

**Idaho:** Large numbers attracted to lights in Preston area. Caused considerable nuisance.

### STRAWBERRY ROOT WEEVIL
(Brachyrhinus ovatus)

**Connecticut:** Migrating into many homes generally.

### TERMITES

**Florida:** Nasutitermes sp. hubbardi (Banks or near) in adult stage collected from dead orchid pseudobulb at Miami, Dade County. First record of this species, as well as first record for genus, from Florida, although it has been picked up by quarantine inspectors at Miami in dead wood coming in from Puerto Rico. A related species, N. rippertii (Bambur) occurs in Bimini Island and other related islands close to Florida coast, but has not been picked up from a Florida nest. This species constitutes possible threat to Florida, since it builds large mounds and develops enormous colonies. Nasutitermes nigriceps (Haldeman) soldiers and workers collected, sent to Dr. Thomas E. Snyder for identification. Commented Dr. Snyder: "This termite occurs in West Mexico, West Indies, Central and South America. I believe it could live in Florida. It is a very destructive termite." **Oregon:** Winged forms of Zootermopsis augusticollis observed in western area. This is somewhat earlier than usual.

### TICKS

**North Carolina:** Three cases of tick paralysis of dogs. **Virginia:** Still heavy along roadways and in woods in some southeast areas.

### WASPS

**North Carolina:** Scolia dubia flying over lawns in large numbers, Guilford and Alamance Counties. **North Dakota:** Vespula spp. troublesome in Fargo area. **Virginia:** Scolia dubia abundant in Richmond area.

### A WEEVIL
(Calomycterus setarius)

**Pennsylvania:** Moderate but quite general in homes southeastern part of state.


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**You can make extra money** with very little extra time and effort by leaving the premises odor-free and clean-smelling. **Spray with Aireactor after every insect control job.**

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**Aireactor XX** gives you a safe, profitable way to dissipate smoke-odors after a fire and save smoke-saturated merchandise and fixtures from costly damage. Don't overlook this excellent source of additional income.

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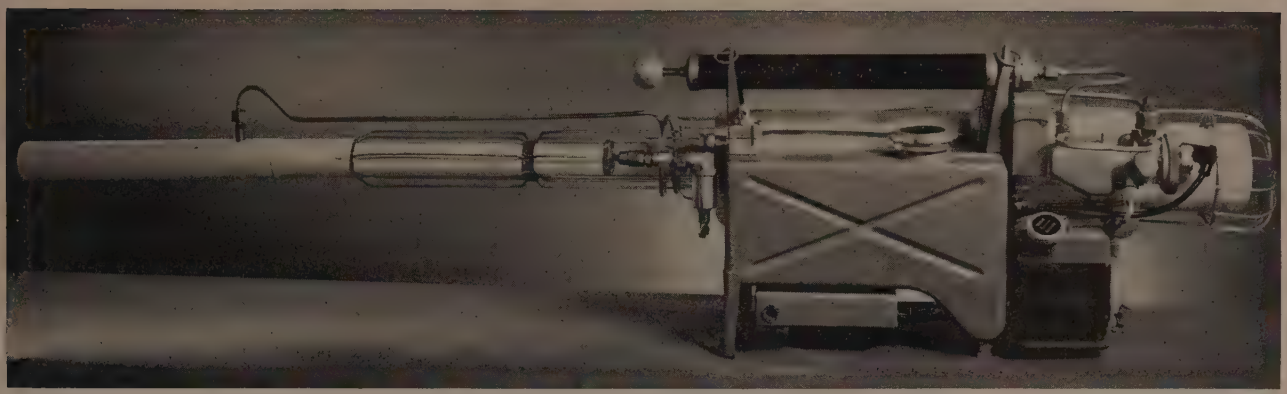

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MEMBER NATIONAL PEST CONTROL ASSOCIATION

## Ohio PCA Members Told How to Test For Resistant Roaches at Mid-Summer Meeting

An easy-to-make "trap" for determining whether or not roaches are resistant was described at the Ohio Pest Control Association's Mid-Summer Meeting August 1-2 by Howard Arbaugh, Pyrrole Chemical Corp., Portsmouth, O.

"First," Arbaugh said, "place a fresh cut potato in a clean coffee can, spread Vasoline on the inside wall of the container, and cover the outside wall with hardware cloth to give the roaches you're trying to trap a suitable climbing surface. Then put the container, with its open end up, near a roach infestation.

"If you find a roach specimen in the trap the next day, take a small section of blotter and spray it lightly with your chemical. Put this in the coffee can, and if the roach lives after exposure to it, you've got resistance."

At the meeting, held in Lancaster's Rising Sun Park shelterhouse, the program ranged from roach and bird control to business topics, mostly through an open group and panel discussion.

On the panel were moderator James V. Benschoter, Ben-E-Lene Co., Toledo; Plummer E. Diehl, Plummer E. Diehl Co., Salem; Jack Kuhl, Tornado Manufacturing Co., Columbus; Jess Purdy, Extermital Termite Service, Hamilton; and James Shoaf, Central Exterminating Co., Cleveland.

In one food market serviced monthly, where Shoaf had encountered roach resistance, it was suggested he spray an emulsion containing 4 ounces of Diazinon

**Members of the Ohio PCA** took a minute out of their crowded program to have this group picture taken in front of Lancaster's Rising Sun Shelter House, scene of their 1958 Mid-Summer Meeting.


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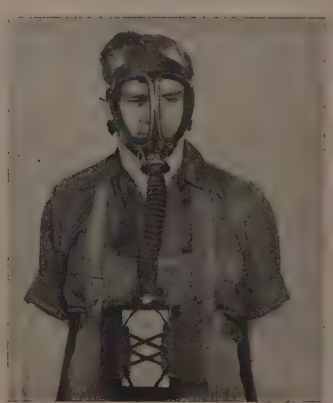

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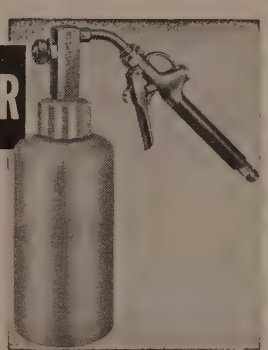
Far reaching spray with air pressure. Quickly covers large area and hard-to-get-at places. Nozzle parts made of stainless steel. Write for Bulletin 76.



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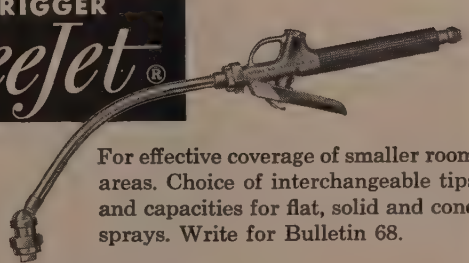

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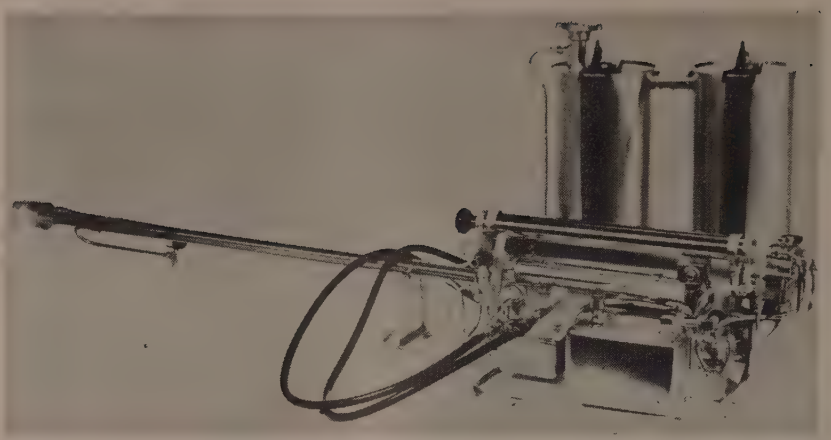

**Dyna-Fog Mr.,** new combination insecticidal fogging and misting generator developed by Curtis Automotive Devices, Inc., is said to be lightweight, versatile, and completely portable. The fuel tank is built into the machine; the solution tank, carried on the operator's back. A selector valve instantly changes output from fog to mist, with metering of particle size controlled by rotation of a numbered dial knob. Reported to give space control fogging with lasting effect of residual mists and sprays, the Dyna-Fog Mr. employs the same pulse combustion principle utilized by Curtis' Dyna-Fog Sr. and Dyna-Fog Jr. According to the manufacturer, the Mr. is useful for larviciding swamps, fogging residences, misting foliage, spraying factory interiors, and other pest control jobs where there is a requirement for lightweight, high output dispensing equipment. For more details, write Curtis Automotive Devices, Inc., P.O. Box 297, Westfield, Ind.

in 2 quarts of water on all wooden fixtures, except where there is a risk of contamination. After chemical application, another member suggested spot-treatment with an aerosol.

W. M. Faulkner, T & F Exterminating Co., Zanesville, O., commented on the discovery of a "built-in" chemical defense roaches have against their insect enemies.

On the bird control segment of the program, John Beck, Assistant District Agent, U. S. Fish & Wildlife Service, Columbus, stressed the importance of a PCO's familiarity with Federal, state, and local bird laws if the operator offers bird control services. Most state and local laws vary—i.e., Columbus prohibits killing of birds (except sparrows); Akron declares them a nuisance, requires they be "confined."

"Some operators have been using thallium, and secondary poisoning with this chemical or with sodium fluoroacetate is certainly a potential threat," Beck added. "Where thallium and sodium fluoroacetate are used, eating of poisoned birds will most certainly result either in death or illness. When birds are poisoned with strychnine, there is little chance of harm unless the intestines are eaten."

In advertising bird control, or any other service, meeting participants agreed the operator should adopt the "positive" approach in his ads. The appeal like "No damage to shrubbery" is negative; "We do quality work" is positive. Likewise, be positive in pricing.

"'In this so-called era of hard times," moderator Benschoter said, "be sure you make money on every job. In the same light, watch the credit you extend to customers; it isn't wise to give credit beyond six months."


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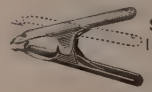

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**908 PRO*—Stainless Steel Sprayer**

Stainless steel tank, 2 gallon usable capacity. 1¾" x 15½" seamless brass pump easily removed for fast filling. Positive dripless nozzle shut-off. 4 ft. hose with exclusive steel braided hose cover and vinyl tubing liner. Shut-off has easy clean Monel strainer. 9" angled extension with fan-pattern nozzle quickly removed from shut-off valve housing.

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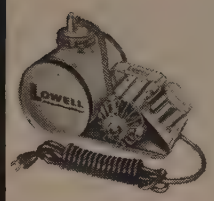
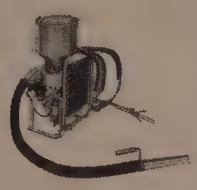


**304—Thoro-Spray* Electric Sprayer**

3 qt. stainless steel tank, automatic time switch, dual purpose nozzle for residual or atomized mist spray. Includes extra 4-jet Atomist* spray head for greater kill of flying insects. Will handle any liquid insecticide, disinfectant or deodorant. Discharges about 1 oz. per minute.

**231—Continuous Sprayer**

A general purpose continuous sprayer with new "Adjusto" nozzle for fog or coarse spray. Patented Nu-Power pump, 1½" x 13", 1 qt. heavy tinplate container. Double seamed and leakproof. 1¼" opening for easy filling. Especially recommended for resale.



**4601—Nap-Sak* Power Duster**

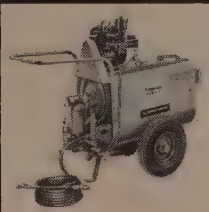
Portable power duster with 2 h.p. two cycle gas engine, rewind starter. One and two outlet models. Weight 42 lbs. empty, 67 lbs. filled. Finger-tip engine and discharge control allows precision application at high volume and high speed over large areas. Aluminum hopper, fan and fan case. Welded tubular steel frame. 2" O.D. dust tube. Mistattachmentavailableasaccessory.

**903 PRO*—Chemical Duster**

A dust applicator of proved performance for effective kill of burrowing pests. Powerful pump provides high volume air blast, high penetration. Aluminum container holds one pound of dust. Cut-off features permit dispersal of air-dust mixture or air only. Clip fixes handle for carrying. Hose ¾" dia. by 3 ft. long. Pump is 14" x 3¾".

**276S—Seal-Tight* Sprayer**

4 gallon capacity, corrosion-resistant stainless steel tank, with exclusive Seal-tight locking cover and electrically welded seams. Easy stroking 1¾" x 15½" seamless brass pump. 42" oil and chemical-resistant hose, rotatable shut-off, 24" brass extension with exclusive Revolvo* nozzle that turns full circle.



**63030—Spraycat* Power Sprayer**

30 gallon tank with single piston pump that has new spring-loaded poppet valve with nylon discs and seats, extremely tough, almost wearproof against agricultural chemicals. New Jet-O-Matic* agitation. Handles all sprayable solutions. Available, gasoline or electric powered models. Rolls easily on pneumatic tires. Other models from 15 to 150 gal. capacity.

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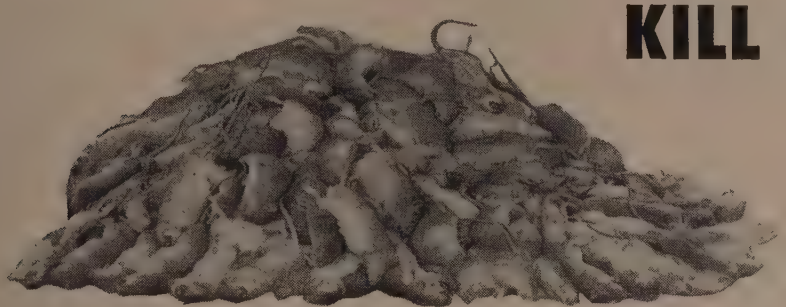
## ... without Carcass Nuisance!



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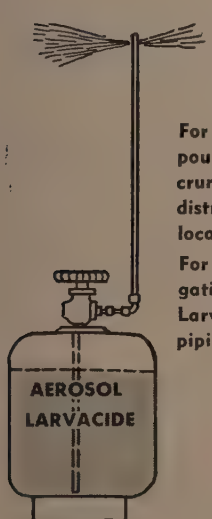



**For space fumigation, pour Larvacide on crumpled bags and distribute in strategic locations.**

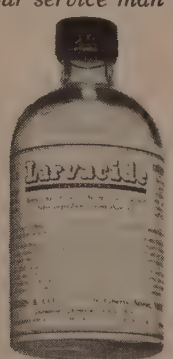
**For larger area fumigation, use Aerosol Larvasolers or low cost piping system.**

Rats and mice which are difficult to control with baits are eliminated overnight with LARVACIDE.

It drives rodents from their hiding places to die on the open floor. *No carcasses remain in inaccessible runways.* And treated burrows usually fall in from dis-use because of residual LARVACIDE.

Where normal fumigation is impractical, a very light concentration of LARVACIDE from wick-bottles will help repel rodents without bothering humans.

LARVACIDE is available in cylinders and in 1 lb. bottles. *Your service man should carry a case of these bottles in his car at all times.* Inquire about inexpensive new piping system for distributing AEROSOL LARVACIDE from outside the building.




# Larvacide®

Available in Aerosol 25 - 50 - 100 - 150 - 180 - 250 lb. cylinders and in flat (non-pressurized) 25 and 180 lb. cylinders as well as 1 lb. bottles.

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Panogen® COMPANY — Ringwood, Illinois
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The SANI-AIR Electric Deodorizer is guaranteed for one year, but actual experience shows there is less than ½ of 1% failure in five years continuous operation.

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# Notebook

TIPS AND IDEAS FROM THE FIELD

## Spray-On Lice

**by Harry Katz**
Elco Manufacturing Co.
Pittsburgh, Pennsylvania

"Can you help me rid my hair of lice?" was the frenzied plea of a pretty nurse who stopped by at our office several weeks ago. She showed us some hairs with nits on them and explained her symptoms seemed to appear right after she had observed lice on the head of a patient in a hospital operating room.

I told her a pest control operator was not supposed to prescribe treatment and recommended she see a physician. I did, however, promise to help establish the diagnosis of lice.

The hairs she gave us had tiny globules of matter which completely encircled the hair. Illustrations in my texts all showed the egg attached. Perhaps the egg was broken off in these cases, I reasoned. Reviewing several pertinent texts, I could not find a thorough enough description of the glue-like substance to establish the definite existence of lice.

I was stymied for several days until a friend brought hairs from an infested child into our laboratory. From these, I learned the glue encircles the hair completely and can slide up and down the hair — just as it did on the nurse's sample. But I learned also that the empty shell does not break off readily. Also the glue is more clear than cloudy; the specimen in question was cloudy.

What was the "glue" then? Nothing but a hair spray net formulation, we learned. When the cause was explained, the case was solved. This situation was an excellent illustration of the power of suggestion described in Dr. Robert W. Gage's article on "Phobias," carried in the October 1957 issue of Pest Control.

## Sapp Heads Florida PCA

Dempsey Sapp, Florida Pest Control and Chemical Co., Gainesville, Fla. is new president of the Florida Pest Control Association for 1958-59, and Dick Lewis, Rudler Exterminating Co., Orlando, vice president. Secretary-treasurer for the current fiscal year is Sam H. Walkup, Jr., Orkin Exterminating Co., Orlando. The three were elected at a recent meeting of the association.

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## Set VPI Course for Nov. 5-7

The 1958 VPI Pest Control Operators' Short Course is scheduled for November 5-7 in Virginia Polytechnic Institute's Agricultural Auditorium, Blacksburg.

Talks by suppliers, NPCA and other industry representatives, and leading university and government entomologists will take in a series of household and outdoor insect pests, as well as the BRAB report and rodents.

For more information, write J. O. Rowell, General Chairman, VPI Pest Control Operators' Short Course, P.O. Box 844, Blacksburg, Va.

## Plan Grain Insect Conference

A conference on stored grain insects and their control is scheduled for Kansas State College October 21-24, according to D. A. Wilbur, head of the college's stored grain entomological studies.

Purpose of the conference is to give instruction in the basic principles of stored grain insect control, and for determining the success of insect control measures. Wilbur said special emphasis will be on effective use of fumigants.

Further details may be obtained by writing D. A. Wilbur, Stored Grain Insect Laboratory, U.S. Department of Agriculture, Kansas State College, Manhattan, Kas.

## Bird, Bat, Rodent Ectoparasites

*(from page 60)*

the insecticide of choice for the control of fleas. In recent years there are strong indications that the cat and dog fleas are becoming resistant to DDT and to some of the other chlorinated hydrocarbons. However, the oriental rat fleas and many of the wild rodent fleas have had only slight exposure to DDT, and 5 to 10% DDT dust still seems to control the oriental rat flea in Southeastern United States for periods of several months. Work in California and elsewhere indicates that other chlorinated hydrocarbons such as dieldrin and heptachlor are also very effective insecticides for flea control. With these less common species of bat, bird, and rodent fleas, the writer would try 5%


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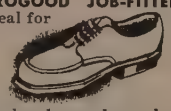

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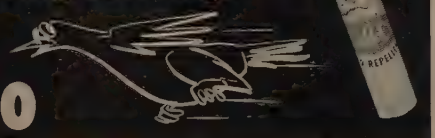

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**Pigeon Flies**

Pigeon flies are unusual insects with tough, leathery bodies, and mouth parts filed for piercing and sucking blood. Larval development takes place within a uterine-like structure of the female, and the young are deposited on the body of the pigeon as full grown larvae which pupate rather soon, roll off the host, and collect in the nests. The common pigeon fly *(Pseudolynchia canariensis)* is an important parasite of domestic pigeons throughout the tropics and warmer regions of the world. They move about quickly among the feathers of the host and bite and suck blood from the parts that are not well feathered. On warm days they may fly into homes and can bite people quite severely. Control may consist of several measures, such as hardware cloth to exclude the birds mechanically from eaves, attics, and similar structures; screening homes with standard 16-mesh screening to keep them from flying into the houses; and residual spraying with DDT, chlordane, BHC or lindane, or similar insecticides on the outside of buildings to kill the insects as they rest on the sides. Bishopp (1929) has recommended the use of pyrethrum powder, one to three pinches scattered among the feathers to control pigeon flies on squabs.

In summary, the control of ectoparasites of birds, bats, and rodents may be divided into 5 steps:

1. Accurate identification of ectoparasites — a flea, mite, or bedbug. This may help greatly with,

2. Determination of the true source of the infestation—whether a household pet or some bird, bat, or rodent living in close proximity to man. This means thorough inspection.

3. Elimination of the host where possible by (a) screening or carpentry to exclude birds and bats, (b) rodent killing, or (c) rodent stoppage.

4. Selection of correct insecticide.

5. Thorough coverage with the correct insecticide at safe and effective concentrations.

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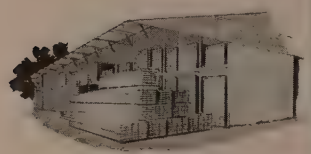

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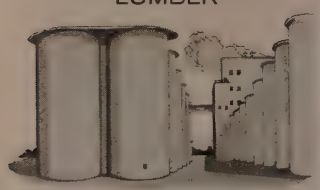

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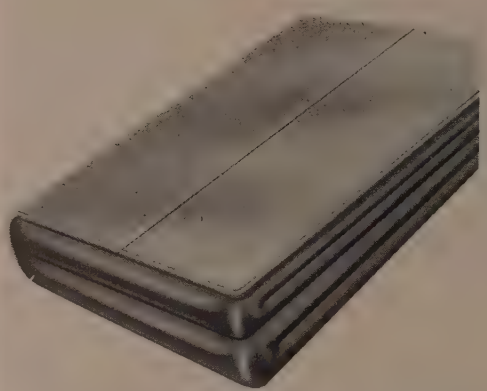
HOMES

FOR USE WITH METHYL BROMIDE AND OTHER DEADLY GASES



Hoosier Fumigation Tarpaulins are made expressly for safely covering all types of infested buildings, lumber, woodwork, grain elevators, homes . . . for *All* fumigation work.

*Immediate Delivery in ANY size.*
*Red or Green; 4 basic weights.*

HOOSIER VINYL COATED NYLON FUMIGATION TARPAULINS ARE:

- Sealed on all seams
- Gas tight . . . air tight
- Waterproof . . . non-absorbent
- Resistant to flame, acid, rot
- Extremely tear resistant
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Write TODAY for free samples and price list or phone Indianapolis MElrose 2-9451

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**Dept. PC • 1302 West Washington Street • Indianapolis 6, Indiana**

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Since 1888

*"For 70 Years Choice For Quality The World Over"*

## Streamlined BLIZZARD Copper Continuous Sprayer

**World's most beautiful copper, continuous sprayer. Pt. and Qt. (39 ounce) sizes. Glistening, solid copper tank. Pump barrel is highly polished, seamless brass. Modern design. Sturdy construction. Twin nozzles for spraying fine fog mist straight ahead or at any angle. Sprays any liquid.**

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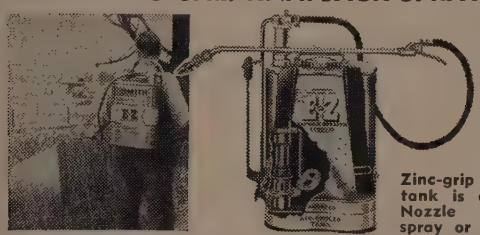


**Finest knapsack sprayer made. Pump lever developes powerful pressure. Seamless brass pump. Brass valves. Zinc-grip steel or copper tank is air conditioned. Nozzle adjustable for spray or long stream.**

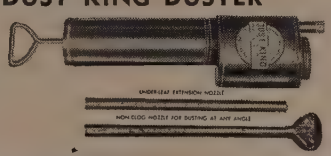
## SMITH No. 16D DUST KING DUSTER

(Quart Size)

**Precision built. Long extension tube. Non-clog nozzle is adjustable. Easy working plunger assures even dust blast. Popular for every dusting purose.**

**MANY OTHER STYLES**

**SEND FOR CATALOG!**



**D. B. SMITH & CO.,** 440 Main St., Utica 2, N. Y.

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*Write Today for Your*

# FREE SAMPLE!

## Prove to Yourself at Our Cost that

# EATON'S A-C Formula

## *Ends* RAT AND MOUSE BAIT SHYNESS

Test **EATON'S A-C Formula** with **Fumarin** in your choice of any of the **4-Flavor Attractant Baits** (Meat, Fish, Molasses, or Coconut) **Free of Charge.**

Prove to yourself - as scores of other PCOs already have - how **attractive and effective EATON'S A-C Formula** is. And it's equally effective on all species of rats and mice.

**EATON'S A-C Formula** is a new, insect and mold resistant anticoagulant formula that features **Fumarin blended with 19** taste-tempting ingredients.

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**Meat — Fish — Molasses— Coconut**

*Economically Priced at Only 24¾c lb.**

F.O.B. Cleveland, Ohio in 100 lb. quantities
Packed in 50 lb. containers

*Extra 5% Quantity Rebate Available

**We will be happy to send you a FREE SAMPLE** if you will tell us which of the 4 Flavors you would like to test. Write Today

**J. T. EATON & CO., INC.**

**1106 Lakeview Rd. Cleveland 8, Ohio**

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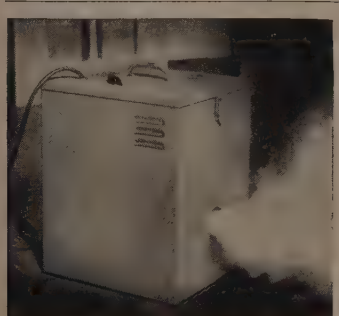

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**ANTS • BEDBUGS • CARPET BEETLES • FLEAS SILVERFISH • COCKROACHES • CLOVER MITES TICKS • and other Insect Pests!**

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- No fire hazard
- No oily film on furnishings
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- Only one filling necessary per day
- Uses pure, dry Lindane, effective against all household insects.
- No lingering odor
- Portable

**Write for names of other users in your locality**

**ORDER TODAY!**

**Prove to yourself that PESTRON will do the job better! $198.50, F.O.B. Los Angeles, new stainless steel model. Guaranteed against defects for 1 year after purchase.**

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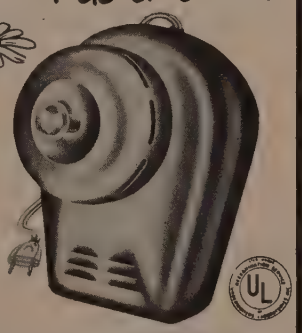
# TIME TESTED & Scent-Flo PROVED...

## Makes air Fresh as a Daisy

**BEST FOR YOUR CUSTOMERS MOST PROFITABLE FOR YOU . . .**



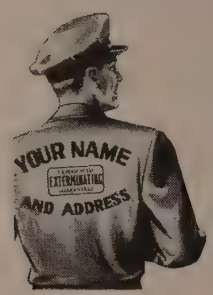
**The SCENT-FLO ELECTRIC FAN-OPERATED AIR FRESHENER IS THE SALES LEADER IN THE FIELD TODAY—THE FIRST AND STILL THE FINEST DEODORIZER ON THE MARKET! Sanitary operators report bigger profits and more repeat sales based on greater customer acceptance and the MONEY BACK GUARANTEE of the manufacturer — the originator of the electric fan-operated deodorizer. WRITE TODAY for full details on FREE trial offer for yourself or one of your customers.**

**We carry the most pleasant and effective Re-fills—Pine, Spice, Bouvardine, Floral and Chennel—30 day Guarantee—Send for free Samples.**

**SPECIAL DEAL FOR DISTRIBUTORS**
**Write for area desired**

Scent-Flo **DISTRIBUTING COMPANY**
7227 HAMILTON AVENUE, PITTSBURGH 8, PA.

ADVERTISING UNIFORMS
"Tell the World" you're in the
PEST CONTROL
BUSINESS




Here's the most effective kind of low-cost, long-life advertising you can buy! Dress your service and delivery men in neat, smartly-styled, low-cost ELIN Work Uniforms. Neatly uniformed employees, whose uniforms are embroidered with your firm name and the exterminating or pest control emblem are the finest kind of publicity for your business. Every man so uniformed becomes a "Walking Ad" moving about the area you serve and creates customer and prospect confidence in you and your business.

**The Most Effective Way to Tell WHO YOU ARE! WHERE TO BUY! WHAT YOU SELL!**

Yes, the low-cost of ELIN Uniforms is much more than an investment in good appearance! The smart, neat work uniforms also help to increase efficiency and add prestige to your business as they advertise your product. Write today for FREE catalog showing styles, prices and samples of fabrics.

EXTERMINATING
COMPLETE SERVICE

PEST CONTROL
GUARANTEED RESULTS

ELIN MANUFACTURING CO.
525 Fifth Ave., Rochester, Indiana


**Restrictive Covenant**

*(from page 72)*

of a trusted few who knew the customers' identity. In the latter instance, the law might prevent him from soliciting their business.

But there is no duty on an employee, normally, not to seek the patronage of his former employer's customers, even though he may have agreed not to disclose business information.[8]

Where a contractural agreement not to solicit is in existence, the courts will again give it effect within reasonable limits. In this particular regard, though, there seems to be a split of authority. Some courts, for example, will enforce such covenants only insofar as an employee may try to induce his former employer's customers to shift their business to his new employer; but if he is seeking them for himself, this is held legitimate business regardless of the covenant. Other courts enforce the covenant in all respects.

Specific cases involving PCO contracts seem to be few so far. Perhaps the leading one, a 1945 New Jersey case[9], does not add a great deal to what has been said since it involved a serviceman who declined to sign a non-competition agreement.

If the case has any significance it appears to lie in the implied possibility that PCOs may have a hard time convincing the courts that trade secrets are inherent in the pest control business. However, the case is 13 years old, so in this respect it may be quite outmoded. At least it seems certain that few PCOs today would agree with the New Jersey court that pest control is a "simple, artless business."

If this brief description of the law as it may affect PCO employment contracts is hard to pin down or appears unpredictable, blame it on the conflicting free-enterprise philosophies which are called into play where restrictive covenants are concerned.

One of these is the employer's right to contract as he chooses. A second is the employee's right to work as he can. A third is the effect of such covenants on the public interest, which is served both by competition and stable business conditions. All three factors have to be considered by the courts. Theirs is a balancing job of considerable delicacy, and the law reflects it.


BARNETT
*Exterminating Chemicals*

For RODENT CONTROL
THALLIUM SULPHATE
PMP ANTICOAGULANT CONC.

For TERMITE CONTROL
CHLORDANE EMULSIFIABLE CONC.
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JOHN BEAN BOOTH
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*GET FULL DETAILS ON THE*
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*THE VERSATILE PEST CONTROL SPRAYER FOR SANITATION AND SHADE TREE SPRAYING*

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Lansing 4, Mich. San Jose 1, Calif.
fmc

A final word of warning to employers who feel it necessary to include restrictive covenants in employment contracts.

Be moderate. Do not try to tie up an employee's post-employment services any further than is absolutely necessary for your protection. Judges are human, and if they see any unconscionable clause of this type in a contract, they are apt to take a dim view of all restrictive clauses and refuse to enforce them.

To know what sort of an agreement is acceptable in your jurisdiction, by all means see a good lawyer.

8. Aetna Building Co. v. West, 39 Cal.2 198; 246 P2 11.
9. Abalene Exterminating Co. v. Elgers, 137 N. J. Eq. 1; 43 A2 165.

## Lehker to Pakistan

Glen Lehker, popular Purdue University extension entomologist, has been granted a two-year leave of absence to serve as U.S. government worker in Pakistan. He left September 28.

## MSU Describes Resort Insects

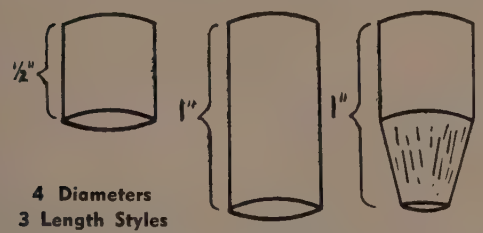
A colorfully-illustrated, 20-page booklet, prepared by Michigan State University, identifies by damage and physical characteristics 20 insect pests of motels, resorts, and cottages, and tells what chemicals and equipment to use for their control.

It can be obtained free of charge from the Agricultural Experiment Station, Michigan State University, East Lansing, Mich. Ask for "Insect Control for Motels, Resorts, and Cottages," Circular R 203.


*Attention Termite Operators*

**Wooden Dowel Plugs**

**to fill drilled holes easily, economically**




**4 Diameters**
**3 Length Styles**

White, Made of Hard Rock Maple —
Easy to Stain or Paint to Match Woodwork

**SIZES AND PRICES**

| Diameter | ½" Long | 1" Long | 1" Long Beveled |
|---|---|---|---|
| ¼" | 3.00 M | 5.50 M | 9.00 M |
| ⅜" | 5.00 M | 9.00 M | 12.00 M |
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| ¾" | 12.00 M | 20.00 M | 23.00 M |

f.o.b. Philadelphia

**See Them at the NPCA Show, Booth 26**

**All Exterminating Materials Also Available From**

**Superior Chemical Products, Inc.**

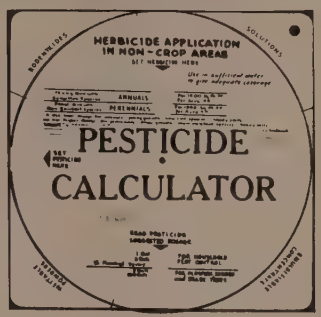
Serving the Exterminating Trade Since 1935

WAlnut 5-5640

**47 North 2nd St.** **Philadelphia 6, Pa.**

*Now!*

**Answers At Your Fingertips**



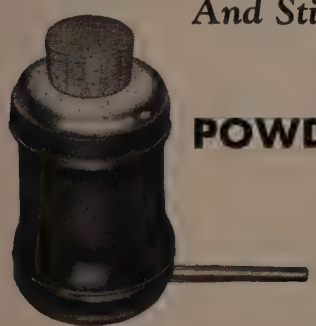

- **Figures Cost of Finished Sprays** Based on Your Cost of Concentrates
- **Calculates Dosages** for 38 Insecticides, 23 Herbicides and 9 Rodenticides
- **BRAB** Chemical Soil Barriers
- **Saves Calculating** Time and Money
- **Eliminates Costly Errors** - Prevents Waste
- **Easy — Handy — Quick — Safe**

*$2.00 Prepaid*

**PEST-CAL COMPANY**

**P. O. Box 551** **Lemon Grove, Calif.**

*The Original . . .*
*And Still The Best!*



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**POWDER BLOWER**

**$1.25 EACH**
**F.O.B.**
**St. Louis, Mo.**

**GETZ EXTERMINATORS, INC.**
**2234 OLIVE STREET** **ST. LOUIS 3, MO.**

**MICE GLUE**

**GETS MICE LIKE FLYPAPER GETS FLIES**

**7½ lbs. $1.00 per lb.** **25 lbs. $.90 per lb.**
**100 lbs $.80 per lb.**

**BIRD-REPELLENT**

**Keep Pigeons, Starlings and Other Birds from Buildings**

**7½ lbs. $1.00 per lb.** **25 lbs. $.90 per lb.**
**100 lbs $.80 per lb.**

**PEST CONTROL CHEMICAL CO.**

**324 Broadway** **Write for details** **Buffalo, N. Y.**

# Classifieds

When answering ads where box number only is given, please address as follows: Box number, c/o Pest Control, 1900 Euclid Avenue, Cleveland 15, Ohio.

**Rates:** "Position Wanted" 5c per word, minimum, $1.00. All other classifications, 10c per word, minimum $2.00. All classified ads must be received by Publisher the 10th of the month preceding publication date and be accompanied by cash or money order covering full payment.

## HELP WANTED

**A SALES AND SERVICE manager** willing to build, run, and eventually own part of a branch office of our Florida pest control business. Your experience should be in service, sales, and management for general pest and termite control. We are most interested in a top-notch man who desires to become a part owner. A mutually-satisfactory employment contract will be given the man we choose. Our men know of this opening. Write and tell us your qualifications. All correspondence confidential. Box 481, Pest Control magazine.

**OPPORTUNITIES UNLIMITED. The** world's largest pest control organization (AAA-1 rated) has interesting openings for men with initiative and ambition. We operate in 28 states from coast to coast and there are opportunities open in many phases of our operation . . . servicemen, managers, technical representatives and salesmen. Experience in professions related to pest control helpful, though not necessary. Liberal salary and incentive arrangements provide unparalleled opportunities for men with good judgment and the ability to get along with people. Our firm, over 50 years old, offers employee benefits including paid vacations, sick leave, life insurance, hospitalization and pension plan. All replies confidential. Interviews in Atlanta by invitation at our expense. Write in detail to Orkin Exterminating Co., Inc., 713 Peachtree St., N.E., Atlanta, Ga. Attention: Personnel Dept.

**MANUFACTURER of complete line** of well-received quality rodenticides needs representative to call on formulators and PCOs. S. E. and N. E. territories open. Please send full resume to J. A. Eaton, Inland Chemical Corp., 415 Lexington Ave., New York 17, N. Y.

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**ARE YOU SICK? Planning to retire?** We will buy any business or accounts in New York State or New England. Write L. A. Moore & Co., Inc., 7 Broad St., Utica 2, N. Y.

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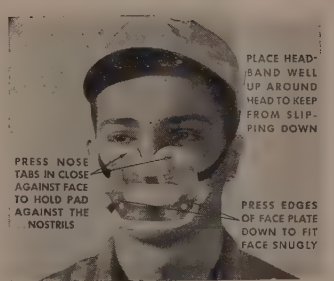
**WILL PAY TOP PRICE for exter**minating business in New York City area. Cash. Replies confidential. Box 439, Pest Control magazine.

**WILL PAY CASH for exterminating** business, large or small, New York City area. Replies confidential. Box 468, Pest Control magazine.

**NEW YORK CITY AREA. Top price** for large or small exterminating business. Cash. Replies confidential, give details. Box 473, Pest Control magazine.

**WILL PURCHASE OUTRIGHT or** make special deal to operate any extermination or termite business in or around Philadelphia, Pa. Box 480, Pest Control magazine.


**MARTINDALE**


ONLY
30c
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Refills
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PLACE HEADBAND WELL UP AROUND HEAD TO KEEP FROM SLIPPING DOWN
PRESS NOSE TABS IN CLOSE AGAINST FACE TO HOLD PAD AGAINST THE NOSTRILS
PRESS EDGES OF FACE PLATE DOWN TO FIT FACE SNUGLY

**PROTECTIVE MASKS**

*so comfortable! so easy to wear!*

Amazingly easy to breathe through! Mask weighs less than ½ ounce complete. Adjustable to any head size. Replaceable throw-away filter pads — only clean gauze touches the face. Positively protects against over 400 nuisance dusts. Easily pay for themselves in added comfort, convenience, protection.

**Protective Masks . . . . . $.30 ea.**
**No. 1 Refills (standard wt.) . . .02 ea.**
**No. 2 Refills (double-thick pad) .02½ ea.**
**Masks packed in individual envelopes. Refills packed 25 to a box. Minimum charge or C.O.D., $2.00. Minimum cash with order, $1.00. Postage paid on all cash orders.**

**QUANTITY DISCOUNTS AVAILABLE**

**MARTINDALE ELECTRIC CO.**
**1367 Hird Ave. Cleveland 7, O.**


**Answers to Primer**
**on page 52**

**1.** (e) **2.** (d) **3.** (f) **4.** (j) **5.** (h) **6.** (k) **7.** (i) **8.** (a) **9.** (b) **10.** (c) **11.** (m) **12.** (l) **13.** (g)

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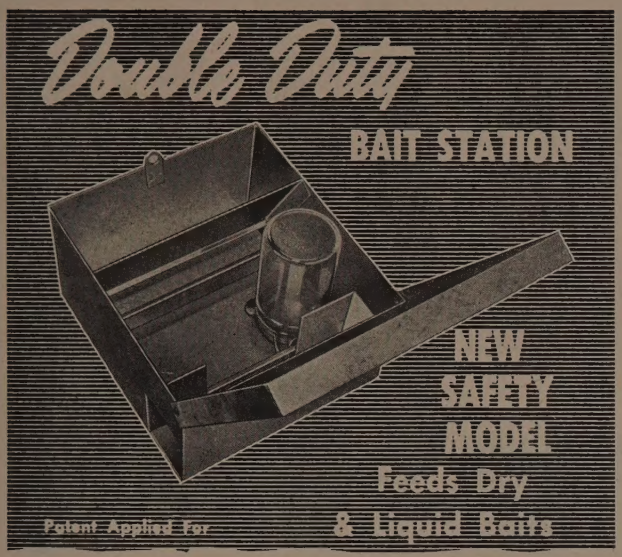
## Wyoming Hit By Encephalitis

Mosquito spraying operations are being conducted at several points throughout Wyoming to check an outbreak of encephalitis that has stricken seven persons in the state.

# Double Duty BAIT STATION




**Safety entrance protects pets and poultry.**
**Double spill rail keeps bait inside.**
**Sturdy, welded, 26. ga. gal. steel.**
**Dry bait hopper, 5 pound capacity.**
**One pint liquid feeder, with fount.**
**Completely assembled, ready to use.**

For positive, field-tested rodent control, you can rely on the Double Duty Bait Station. For new LOW PRICES and further information, write:

Universal ELECTRIC PRODUCTS CO.
**Madison 4, Wisconsin**

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**NEW...and IMPROVED**
**WELL CONSTRUCTED**
# POWDER GUN
**60¢ EACH**
**F.O.B. Atlanta, Ga. Plus Parcel Post and Sales Tax Where Applicable**

*For further information write:*
**Purchasing Department**
**ORKIN EXTERMINATING CO., INC.**
**713 West Peachtree St., N.E.**
**Atlanta, Georgia**

**WORLD'S LARGEST PEST CONTROL COMPANY**

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# SMOKE ODOR CONTROL
# CODE 999

**"BE FIRST"—With a New Profitable Service**
**"ORDER TODAY"—Trial 4/1 gal. case**
**$20.00 - Make $200.00**

NPCA CONVENTION **TOWN CHEMICALS PEST CONTROL** BOOTH 10

**3061 E. Washington Ave., Madison, Wis.**

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*Solves*
# YOUR SPRAYING PROBLEMS
*New*
# ROTOMIST 50
*THE VERSATILE PEST CONTROL SPRAYER FOR SANITATION AND SHADE TREE SPRAYING*

**GET FULL DETAILS**
**JOHN BEAN BOOTH #32**

**JOHN BEAN DIVISION**
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*You Can* **MAKE MORE MONEY**
**by using and selling**
# FUMO-KILL
**The New Effective Fumigant That Will Kill**
**Mosquitoes, Flying Moths, Spiders, Silverfish, Flies, Wasps, and Exposed Waterbugs, Roaches, Bedbugs, and Ants.**

**FUMO-KILL** is truly the modern method of insect extermination. Light match to contents in can, will produce fumes — NO FLAME. Non-hazardous. This amazing FUMO-KILL insecticide has been tested, and found effective against most types of household pests.

**FUMO-KILL has the following advantages:**

**EASY TO USE:** Requires no Special Equipment.

**ECONOMICAL TO USE:** Two ounces fumigates up to 6,000 cubic feet.

**EFFECTIVE TO USE** — Follow instructions on can for best results. **This Amazing FUMO-KILL insecticide is by all qualifications, a leader in its field.**

**FUMO-KILL can be obtained in 2 oz. (enough for up to 6,000 cubic feet)—4 oz. and 1-lb. cans.**

**Cost of 12—2-oz. Cans.....$ 7.50 per doz.**
**Cost of 12—4-oz. Cans.....$13.50 per doz.**
**Bulk.....$ 4.50 per lb.**

**Delivery Charges Prepaid**
**For complete information write or phone today.**

# MAR-MEL PRODUCTS, INC.
**Phone: Van Buren 6-2060-61**
**753 South Kedzie Ave.** **Chicago 12, Illinois**

# Pestales

**Morale-ist.** Best way to build company morale is to give employees a mutual interest. Just ask Joe White of Cleveland's Central Exterminating Co. Joe acquired a slightly rundown cottage on Pymatuning Lake, just over the Ohio-Pennsylvania border, as a family vacation spot for his company. Then he and his men put in 600-800 off-duty hours painting the outside, hanging shutters, building a porch, tearing out the old partitions inside and adding new ones, and finally drywalling the whole interior. Central's George Ross tells us one work force of 11 men drove down to the cottage recently on a Friday night, intending to work Saturday and return to Cleveland Sunday. But the 11 went right to work after reaching the cottage Friday evening, were still at work the next morning when the sun came up. Newly added fixtures include a television set and a boat with an outboard motor.

* * *

*Backyard insect zoo.* An educator in Montreal, Canada claims proudly he has collected over 700 insect species from a 20-square-yard plot of ground in his backyard over the last five years; could top 1,000 if he planted some insect attracting flowers. *Seems like his money would be better invested if he hired a PCO.*

## ECONOMICAL RAT JIGGER* CAN'T TIP, CAN'T LEAK, SAYS 'POISON' ALL OVER IT!

**Spill-proof!** Exclusive flared skirt construction prevents container from tipping, even if rat or mouse steps on rim! Holds ⅓ ounce.

**Leak-proof!** Tests show: no seepage after 18 days, thanks to strong, seamless, one-piece construction.

**Absolutely safe!** Unmistakable skull and crossbones warning signals, word POISON printed in large capital letters, all over!

**Easy to handle!** Saves you time, and it's economical, too. Prices only $5.62/1000 for lots 5000 to 25000.

**Tested and approved!** Rat Jigger* Rodenticide Container meets all the rigid specifications of Federal Agencies and the N.P.C.A. Sets standard for quality and safety as incorporated in Standard Safe Handling Procedure for Compound 1080 and other liquid poisons. Order with coupon. Packed 5000/case.

**Prices through your distributor**

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|---|---|
| 1-5M | @ 6.75M plus PP |
| 5M-15M | @ 5.62M plus freight |
| 20M or over | @ 5.62M freight prepaid |

Universal Paper Products Company, 380 Lexington Avenue, New York 17, New York
Please ship through nearest distributor: _____ No. 1080 RAT JIGGER
Rodenticide Containers @ _____ (Cases-5000 each) per M $_____ (See prices above)
NAME _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____
SIGNED _____

*T.M. Pat. Pend.


**Hot time for hornets.** Things were really buzzing in a suburban Cincinnati neighborhood several weeks ago until Robert C. Yeager of Cincinnati's Rose Exterminator Co. stepped in. Hornets swarming around a football-sized nest in Kennedy Heights threatened dozens of neighborhood children and grown-ups. Not even the State Highway Department, county legislators, city police, or the city manager knew what to do about it. But Yeager did. After dark while newsmen scribbled notes and television cameras ground away, Yeager and two aides—Al Bloebaum and Dewey Rose—wrapped a thick matting of rags around the end of a long aluminum pole, soaked the rags in an inflammable solution, and set their torch on fire. Then Yeager mounted a step ladder under the colony, touched the flame to the nest. As the fire swept into the nest, assistant Bloebaum sprayed a flaming liquid on it from a pressure tank. The football cracked apart and harmless singed hornets fluttered to the pavement 18 feet below. Editorialized the Cincinnati Enquirer: "It was Mrs. Daly (a Kennedy Heights resident) who complained that all efforts to get aid from police and other agencies were fruitless . . . Only Yeager was willing to put a plan into action."

* * *

*Not by the book.* Amber, a cat mouser scheduled for shipment from St. Louis, Mo. to Seoul, Korea where she was to clean up a rat-infested mission, was inoculated recently against dozens of diseases in preparation for the trip—then died from the shots. *This was one Amber not "Forever . . . "*

* * *

**Bouquet to Aromatic.** PC editors are deluged daily with various promotion pieces: some really clever; others, so-so. But the company we're always happy to hear from is Aromatic Products, Inc., New York, N.Y., which sells various odor-masking fragrances for chemicals used by PCOs. With these promotion pieces usually comes a blotter sample of one of their scents, and the latest was of Tibalia, a fragrance that made our office smell like — we're told by Aromatic's brochure — an Oriental bloom. A huge improvement, adds our circulation manager, who has no truck for the cigar and pipe smoke pouring from our editorial and business offices.

* * *

*Crowded family circle.* A London medical official warned Britishers last month that one fly is capable of having 800,000 "grandchildren" within a couple of months. *And we think we have trouble remembering birthdays!*

* * *

**Party crashers.** Hamburgers were sizzling on the outdoor picnic grill, plates all set — everything seemed just right for the summer picnic of Aurora, Ill.'s Arwell, Inc. Then Jack West, Arwell's Aurora supervisor, let out a wail. Streaming out of an 8-pound sack of charcoal next to the fire was a swarm of roaches. " . . And nothing short of our own feet to take care of them," muses Arwell's Ture Ericson. "What a spot for a PCO to be in."

# Residual Sprays

## Require Both Of These "Plus" Factors: Flushing Power And Fast Knock-down

It takes both to provide effective control of crawling insects. And the one material recognized by formulators and PCO's alike for its superior flushing and knock-down characteristics is Pyrenone.*

The versatile Pyrenone concentrates are unique in other ways, too. They are synergized combinations of technical *piperonyl butoxide* and *pyrethrins.* Both ingredients are so low in toxicity to human beings that sprays based on Pyrenone are widely used in homes . . . in hospitals . . . and in sensitive food areas.

For spot applications, in less critical areas, to control crawling insects or to provide residual control of flying insects, Fairfield now offers Residual Concentrate No. 1—an unusual combination of Pyrenone and Malathion. Unusual in that it is extremely effective against "resistant" insects—and is free of objectionable odors.

Remember, too, that Pyrenone is completely compatible with other pesticide materials, including chlorinated compounds and organophosphates.

For complete technical data on Pyrenone concentrates, write the nearest office of Fairfield Chemicals. Branches in principal cities. In Canada, write Natural Products Corporation, Montreal and Toronto.

**Pyrenone***

*Reg. U.S. Pat. Off., FMC

fmc
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441 LEXINGTON AVENUE, NEW YORK 17, N. Y.

# You can win "Mr. T" at Shell Chemical's Booth 37

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**1)** You can see, firsthand, the outstanding termite control you get with alkali-stable dieldrin.

**2)** You get a chance to win the display model of "Mr. T." for use in your Pest Control merchandising.

Here's why dieldrin is the insecticide that thousands of PCO's rely on. Dieldrin will not break down in the soil where lime, cement and other alkali material are present. Dieldrin is long lasting—a single application lasts for many years. It's economical—dieldrin, in extremely small dosages, gives you outstanding termite control.

Protect your guarantee—use alkali-stable dieldrin in all of your termite operations. Use it in your other pest control operations, too! You'll find dieldrin gives you the same outstanding control of household pests such as ants, cockroaches, carpet beetles and others.

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